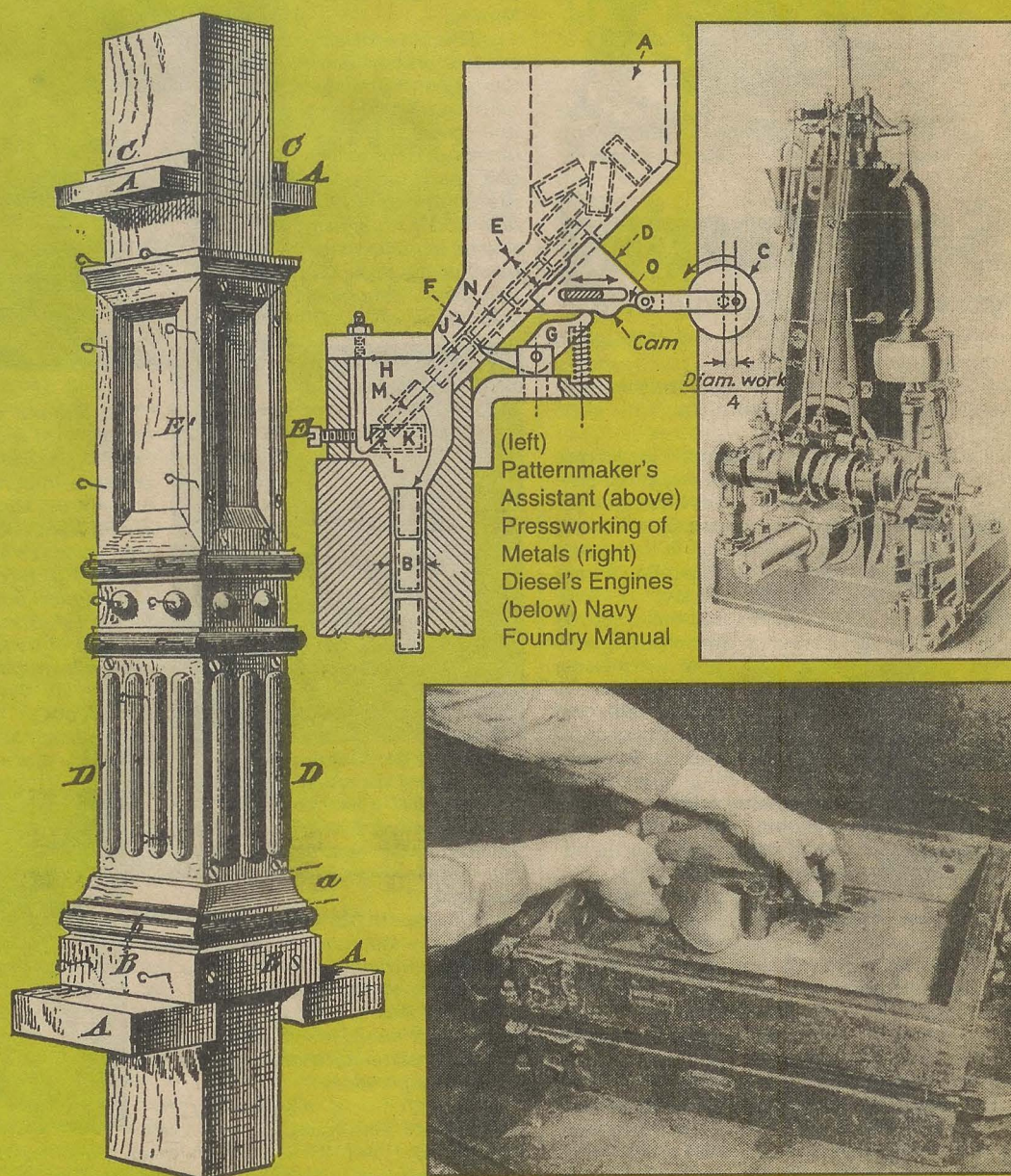


L I N D S A Y ' S

Supplement Spring 1996
Catalog 94

METAL WORKING BOOKS

Unusual metalworking books of exceptionally high quality
revealing skills and processes almost forgotten.



LINDSAY PUBLICATIONS INC
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GREEN-SAND CASTING

reprinted by Lindsay Publications

You've built a small furnace, and you have a ladle of molten metal. What are you going to do with it? Are you going to pour it into an old boot? You had better have a sand mold ready.

You probably already realize that making green-sand molds (the sand isn't really green, just wet) is more of an art than a science. Where to put sprues and runners, vents for steam and gas, and just how hard to ram up the sand are skills that come only with practice.

Old timers will tell you that you can't really learn green-sand molding from a book, and they're probably right. But this book comes as close to revealing the secrets as any I've seen. When you see the gorgeous illustrations, you'll agree.

This is a reprint of chapters from a 1903 technical school textbook. Learn about tools, materials and methods, including sands, tempering, sieves and riddles, rammers, required



Green Sand Casting

Quality Castings require Quality Sand Molds!

hardness, deep molds and venting, drawing the pattern, closing and pouring, shaking out the casting, and much more.

Learn about molding by bedding in — a technique in which you build the mold right on the foundry floor in a pile of sand. It's quite a skill to level and set up such a mold.

In part three you'll learn about molds for casting iron. You get rare illustrated how-to on making joints for irregular forms, three-part

molds in three-part flasks, three part molds in two-part flasks, followboards in forming joints, plaster-of-Paris matches, match plates, gagers and soldiers, setting of cross bars, nails and rods at joints and corners, valuable lessons on patching molds, swabbing broken corners, sleeing and printing dry blackening, skin-dried molds, types of gates and pouring basins and more.

Then learn about chaplets, problems such as blowholes, shrink holes, shrinking and contraction, techniques of proper feeding, bench molding with different type of snap flasks, and on and on.

Most of what you learn in this book is on a larger scale than what a home foundryman might need. But the techniques are exactly the same. The illustrations are dynamite! You won't just be told how it was done, you'll see for yourself.

Build Gingery's charcoal furnace. Ram up a mold, melt down some aluminum cans and scrap and make a pour. No matter how good your casting is, you'll want to make it better and more complicated next time. You'll learn how to do just that — right here!

This is one of the essential books for the foundry library. Excellent book. More techniques here than you will use in a month of Sundays. Get a copy! 5 1/2 x 8 1/2 softcover 174 pages No. 4082

\$9.95

Navy Foundry Manual!

In 1958 the government may actually have done something right!

FOUNDRY MANUAL

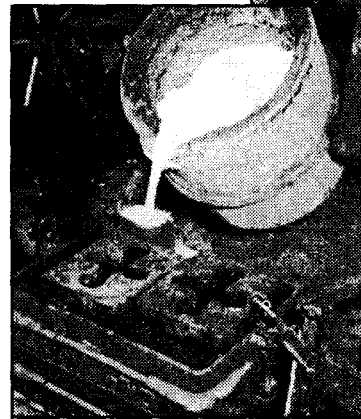
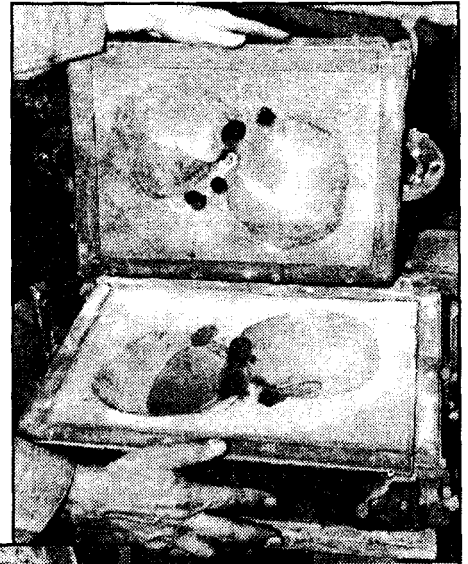
by the United States Navy

reprinted by Lindsay Publications

Looking for a great foundry handbook? I hate to admit the government ever did anything right, but this 1958 NAVSHIPS publication is a gem. It's loaded with some of the best foundry photos and drawings I've ever seen. You can learn by merely studying the illustrations.

The preface accurately describes the Manual—

"This Manual is intended primarily for use by foundry personnel aboard repair ships and tenders. The recommended practices are based on procedures proved workable under Navy conditions and are supplemented by information from industrial sources.



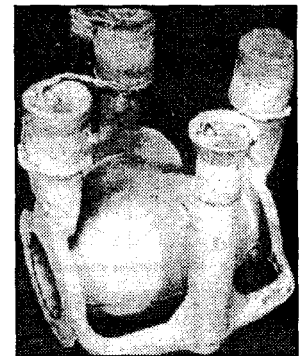
"The Manual is divided into two general sections. The first section, chapters 1 through 13, contains information of a general nature, such as 'How Metals Solidify,' 'Designing a Casting,' 'Sands for Mold and Cores,' 'Gates, Risers, and Chills,' and 'Description and Operation of Melting Furnaces.' Subjects covered in these chapters are generally applicable to all of the metals that may be cast aboard ship.

"The second section, chapters 14 through 21, contains information on specific types of alloys, such as 'Copper-Base Alloys,' 'Aluminum-Base Alloys,' 'Cast Iron,' and 'Steel.' Specific melting practices, suggestions for sand mixes, molding practices, gating, and risering are covered in these chapters.

This manual has been written with the 'how-to-do-it' idea as the principal aim. Discussions as to the 'why' of certain procedures have been kept to a minimum. This manual contains information that should result in the production of consistently better castings by repair ship personnel."

Although it pays to know why procedures are performed the way they are, the first step is to perform them. Consider this to be pure practical how-to. It delivers. Excellent book. No two ways about it. If you pour metal, you need this book. Get a copy of this. You won't be disappointed. A gem! 8 1/2 x 11 softcover over 300 pages No. 20072

\$19.95





Melt Metal!

CHARCOAL FOUNDRY

by Dave Gingery

You can melt aluminum, pot metal, and even brass with a very simple home built furnace fueled with grocery store charcoal. In a very few minutes you can melt beer cans, your wife's pots and pans, the siding off your neighbor's house, the pistons out of your car, and anything else you can beg, borrow, or steal. It costs very little to build, and it works incredible well.

All you need is an old metal 5-gallon pail, about \$6 worth of fireclay, some sand, a junk

Melt Aluminum with Grocery Store Charcoal!

auto heater fan with a coffee can shroud (or a vacuum cleaner), and this book to build a high temperature furnace. One man built the furnace itself for about \$7. The blower, cords, a pipe for a crucible, and the rest cost a few dollars more, but I can't imagine that the whole set up being more than \$25 - probably much less if you're a good alley picker.

Some sandbox sand and fireclay will do very well for making sand castings. And all you need are some 1x4's and a few nails to build a cope and drag to make your molds. You wouldn't believe how easy it is to build a complete foundry.

After making a pattern (something that takes some skill), I rammed up a sand mold and fired up the furnace. In went the crucible around which I placed about 75¢ worth of charcoal briquettes. Into the crucible went beverage cans, an old electric iron, and a couple of pistons. After skimming off the dross, I poured the 1400°F metal into the sand mold. About 20 minutes later, I had a face plate casting for a small lathe. Since then I've made lots more castings, and you can too.

This is the first book in



Gingery's series showing you how to build a complete metal working shop from scrap for almost nothing. You must have the foundry setup in order to build the lathe, milling machine and other tools described in each of the other books. Castings make strong and precise machine tool components. You'd go broke buying the castings, if they were available, but you can make them for almost nothing in your own foundry.

Building machine tools takes hours and hours, but building the charcoal foundry is far simpler, and loads of fun. You can make castings for any purpose. Almost anyone can build a furnace, and you will become "hooked" on melting metal once you try it.

The "Charcoal Foundry" is a small book worth every penny of its price and then some. Every page is loaded with practical how-to useful advice. You get many, many drawings and excellent photographs that will show you step-by-step how to build a foundry.

Highest recommendation! This is the book to get started with. Thousands already have! Top rate! Get a copy. 5 1/2 x 8 1/2 softcover 80 pages

No. 163

\$7.95

Patternmaker's Assistant

Incredible 1877 Foundry Info!

PATTERN MAKER'S ASSISTANT

by Joshua Rose

reprinted by Lindsay Publications

Before Fred Colvin, there was Joshua Rose. He, too, was a master mechanic and machinist, and he, too, pumped out one book after another. Here is one that is not only useful, but visually appealing. It's illustrated wall-to-wall with beautiful engravings.

"The pattern maker's assistant embracing lathe work, branch work, core work, sweep work and practical gear construction; the preparation and use of tools; together with a large collection of useful and valuable tables." This is the 3rd edition copyright 1877, printed in 1882.

You get eighteen unnamed chapters and a large collection of tables. Within the chapters are many brief topics such as how a pattern is molded, bearing or brass pattern, pattern pegs, hexagon gauge, double-flanged pulley, jointing spokes, core-box for pipe bend, pillow block, square column, ornaments for square column, window sill, thin work, sweeping up a boiler, sweep up and engine cylinder, gear wheels, construction of pinion, turning screw of worm pattern, cogging, shrinkage of solid cylinders, and much, much more. You also get instruction on all kinds of wood working machines from jig and circular saws to lathes and planers.

You can't get make great castings unless you have great patterns. You'll find other valuable pattern making books in these catalogs, but this is special because it is from another century and from the other side of the Atlantic (England).

What you get here is advice from another time and place - a new slant.

Great book for the foundry man as well as the beginning woodworker. Great illustrations. If nothing else, get a copy and decoupage the engravings to your refrigerator! (Or your sister-in-law's forehead...) There are other Rose books that will have to be brought back. This is one of the more appealing. Get a copy. 5 1/2 x 8 1/2 softcover 324 pages

No. 21753

\$14.95

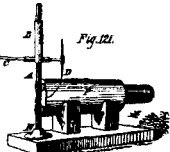
PATTERN MAKER'S ASSISTANT.

pattern maker how the core is to be taken from the box as it is how a pattern shall be drawn from the mold. We may divide cores molded in a core box into three classes: First, those that lie as they are made; second, those that require turning over; and third, those that not only require turning over, but require also a bed of sand made for them to lie upon during the process of baking. Figs.



PIPE AND JOINT WORK.

arm, C, as well as a set screw for fastening the arm, C, in any desired position. At the end of the arm, D, is placed an arrangement for fastening the scriber, D, so that we may set the scriber at any requisite distance from the rod, A, by adjusting and fastening the arm, C, and render it about while lifting or lowering it upon the rod, A. When properly made, this is a most useful tool; and if not in use, it may be taken apart in an instant, and it occupies but very little room in a tool box. If the stand, B, pierced with holes for screwing upon, is provided, it will be a very useful addition, but it may be dispensed with; whereas the tool proper, or some improvised substitute for it, is absolutely necessary, for the curve must be struck somehow. If the pipe or branch is large—over six inches in diameter—in attempt to fit it by guessing and trying, is the work of a novice and not of a workman. To apply this tool to cut branch, we proceed as follows: Taking a planed board, we gauge a line upon it, and at a point on this line we describe a circle upon it of the size of the foot of the instrument. We then make two V blocks, such as shown in Fig. 122, to carry the branch. We then place these V blocks with the apex of the V exactly over the gauged line, and place the branch in the V's. We then set the point of the scriber at a distance from the end of the trammet equal to the dia-



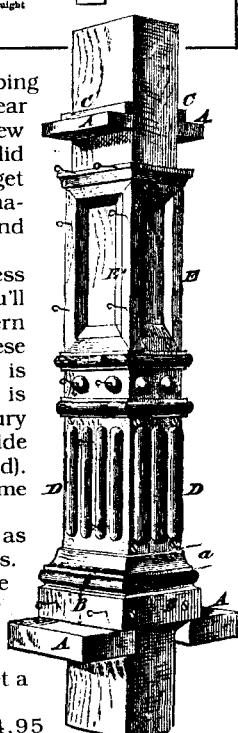
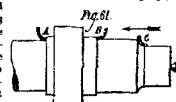
the branch in the V's. We then set the point of the scriber at a distance from the end of the trammet equal to the dia-

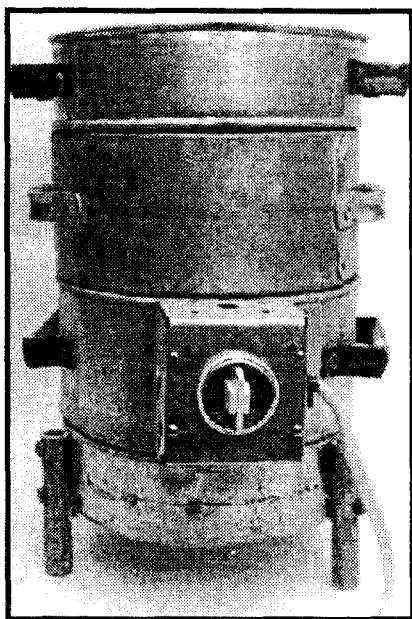
THE LATHE.

will steady it and prevent it from digging the gouge is shown, in Fig. 60, to be cut left; it is equally left to see the handle of the gouge, the cutting case, and the angle is usually to one being rather left tip.



from left to right. The reason for this are as follows: The face of the gouge, on its hollow side and near the cutting edge, receives the strain which is necessary to curl the shaving, that is to say, which is necessary to force it out of the straight





LIL BERTHA

**(Dave Gingery's 1800°
Possum Cooker!
Melts Metal, too...)**

"LIL BERTHA" ELECTRIC FURNACE
by Dave Gingery

Let Dave show you how to melt aluminum and brass with electricity! If you have good ventilation and are careful, you can melt indoors, rain or shine. Electricity isn't cheap, but it's no more expensive than charcoal, and it's right there in the wall — all you need. Best of all, you can dial up the heat you need on thermostat, put the metal in the crucible, and go ram up your molds. After the metal melts, it will sit there at pouring temperature until you're ready. The furnace will practically watch itself.

You can build this high performance electric furnace that runs at 1800° practically forever for very little money. And it's surprisingly easy.

Not only that, you can use Lil' Bertha to calcine investment molds, carburize and heat treat metal, forge, temper, anneal, enamel, fire ceramics, and many other tasks. If you go to the trouble of getting the harder-to-find high temperature electric element, you can fire at 2300° for extended periods, making this furnace ideal for melting brass!

Dave will show you how to size the furnace to fit your needs, where to get and how to handle crucibles, make the electrical calculations, and more. This is typical Gingery material — top rate wall-to-wall how-to. Order a copy. 5 1/2 x 8 1/2 softcover 67 pages. No. 4163 \$8.95

Call early in the day!

If you intend to call us for information, to place an order, or to troubleshoot a problem, call us early in the day. We may be difficult to reach late in the afternoon. Call soon enough, and we'll be able to get your order out the same day.

Build Dave Gingery's Centrifugal Fans

**Build powerful blowers
for a variety of uses!**

**HOW TO DESIGN & BUILD
CENTRIFUGAL FANS**

by Dave Gingery

There are low-cost centrifugal fans available, but rarely will they do exactly what you want them to. If you're building a small furnace to melt aluminum, you can use a surplus fan. If you're going to build a brass or cast iron foundry, you'll probably need more pressure than a make-shift fan can provide. If you're going to build a dust collection system for woodworking tools, a welding booth, or a grinding wheel, you'll find that the blowers you need are not available at low cost.

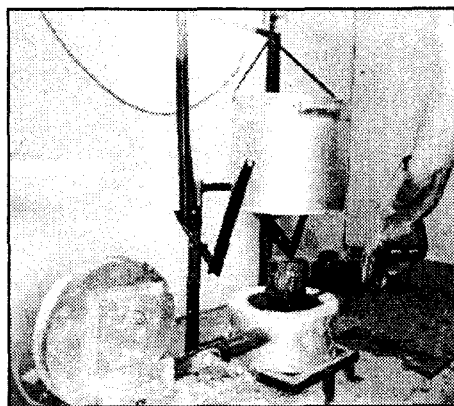
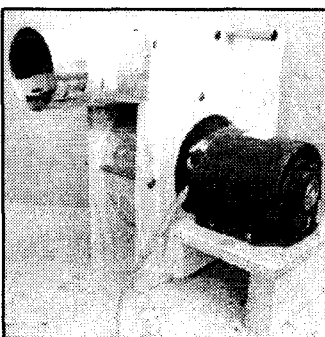
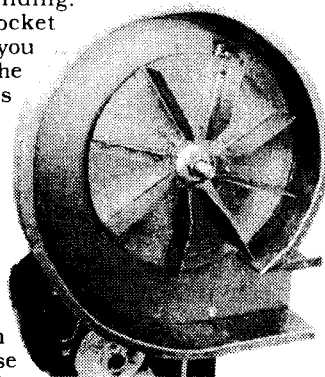
Dave will show you how to design a fan with simple math that will provide the volume and pressure you need for the system you're building.

With a pocket calculator you can figure the dimensions of the fan, the size of motor needed to drive it, and predict performance.

You'll be shown how to use pillow blocks, shafting, plywood, sheet metal and other common materials to build a dirt cheap blower that outperforms any make-do blower you might find on the surplus market.

Dave will also show you how to build a simple manometer and pitot tube. You can actually measure performance and fine tune your air system. Dave used this equipment to build and adjust a powerful gas burner for his iron-melting crucible furnace.

Learn how to build a dust precipitating cyclone, design sheet metal transition pieces (a very valuable skill), balance a dust collection system, build a static balancing stand, and more. Gingery's brand of simplified do-it-yourself knowledge is not available anywhere else. Top rate. Order a copy. 5 1/2 x 8 1/2 softcover 112 pages. No. 4600 \$9.95



**BUILDING A GAS-FIRED
CRUCIBLE FURNACE**

by Dave Gingery

Dave says beginners should "cut their teeth" melting and casting aluminum before trying "hot stuff." An excellent simple, low-cost furnace for this is the charcoal furnace described in one of Dave's earlier books.

Once experienced, you'll want to pour larger quantities of aluminum than the charcoal foundry can provide, alloys with higher melting points such as brass, and eventually cast iron. You'll also want to use a more convenient and lower-cost fuel. The gas-fired crucible furnace is exactly what you need.

Melt Iron in a Gas Fired

CRUCIBLE FURNACE!

**Fast, safe melts!
Easy-to-build!**

Here you can melt up to 20 pounds of cast iron in a crucible. When the melt is ready to pour, both the top and body of furnace raise up so that you can grasp the white hot crucible from the sides making the crucible easier and safer to control than if you had to use tongs to lift the crucible straight up as is done with other furnaces.

Although charcoal is widely available, it is messy and somewhat expensive. Gas is low-cost and clean, but requires a more complicated burner. Dave will show you all the tricks, including how to build the centrifugal blower, so that you get a hot, efficient and quiet gas burner.

You get wall-to-wall how-to — the detailed information that Dave is famous for. Six chapters cover basic design, building the furnace body, building the frame, building the burner, crucible and tongs, and operating the furnace. You get photographs, drawings and proven techniques.

You get the standard Gingery quality. Full tilt! Complete! Detailed! Excellent! You can pour your own cast iron castings, quickly and safely adding a whole new dimension to your machine shop. Get a copy of this. Highest recommendation! 5 1/2 x 8 1/2 softcover 108 pages. No. 1281 \$10.95

Blacksmith Shop & Iron Forging

BLACKSMITH SHOP AND IRON FORGING

reprinted by Lindsay Publications

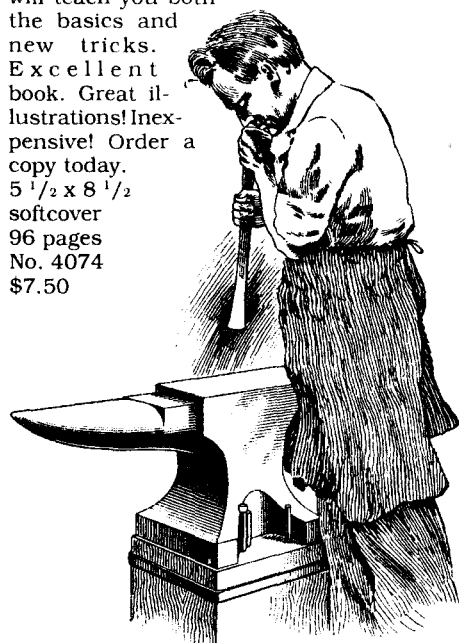
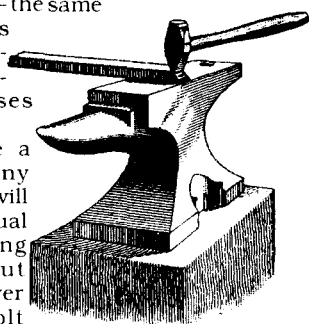
Blacksmithing is the forging of iron with simple tools — the same forging process carried on today with enormous presses and dies.

There are a great many books that will show the usual blacksmithing projects, but have you ever made a bolt head by welding on a ring? Have you made a rocker arm? How about a steam locomotive reverse shaft? Or a rudder frame?

Besides these rare topics, you get a complete discussion of blacksmith shop equipment: the forge, tuyeres, bellows, hood, chimney, fuels, anvil, all types of hammers, chisels, and all the rest.

The second part will teach you about the making of cast and wrought iron and basic operations of forging. You'll make an eye hanger, gate hook, and other educational projects. You'll learn how to weld and make a small chain and tongs.

Although blacksmithing today is almost a fine art, it was once a basic machine shop skill needed in day-to-day operations. This 1906 technical school textbook will teach you both the basics and new tricks. Excellent book. Great illustrations! Inexpensive! Order a copy today. 5 1/2 x 8 1/2 softcover 96 pages No. 4074 \$7.50



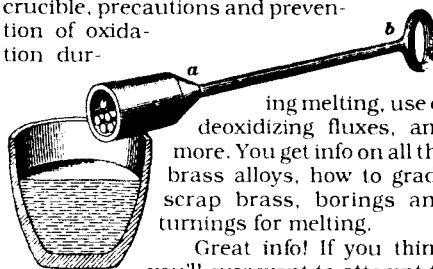
Brass Founding

BRASS FOUNDING

reprinted by Lindsay Publications

Pouring molten brass is somewhat different from pouring aluminum or iron. This chapter from a 1903 technical school textbook will show you the differences. You'll learn about the molding sand needed for brass, blackenings and partings, contraction, gating and feeding, cleaning of castings in tumbling barrels and with pickling, the crucible furnace, a simple brass furnace, brass furnace in a battery, increasing the speed of the melt, combined cupola and crucible furnace, oil burning furnaces, care of crucibles, and more.

You get valuable info on melting copper and old brass, adjusting and handling the crucible, precautions and prevention of oxidation during



ing melting, use of deoxidizing fluxes, and more. You get info on all the brass alloys, how to grade scrap brass, borings and turnings for melting.

Great info! If you think you'll ever want to attempt to pour brass, then order a copy now! 5 1/2 x 8 1/2 booklet 39 pages No. 868 \$4.00

Secrets of HAND SCRAPING

OLD TIME MECHANICS

reprinted by

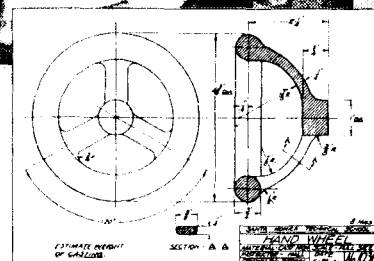
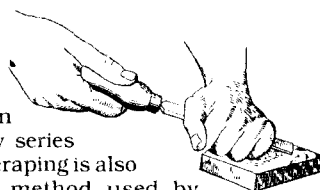
Lindsay Publications

Back in the 1700's when you opened a machine shop, you didn't run out and buy a lathe and planer, you built them! Scraping was the skill necessary to produce absolutely flat and true beds and tightly fitting bearings. It was a skill that every mechanic learned, yet today few people have even heard of it.

Scraping is used on the machines described in the Gingery series of books. Scraping is also the secret method used by Whitworth to produce large surface plates accurate to millionths of inch two centuries ago! It is a very valuable skill. The first half of this booklet deals with the surface plate and scraping.

Also reprinted are instructions for lapping, grinding valves and joints, making shrink fits and force fits, and for balancing pulleys, cutter-heads, and emery-wheels.

Get a copy! Learn about these old-time skills. This information is fast becoming lost technology. 5 1/2 x 8 1/2 booklet 15 pages No. 855 \$3.00



Practical Wood Patternmaking

"The purpose of this textbook is to prepare the individual to become skilled patternmaker in the shortest possible time."

PRACTICAL WOOD PATTERNMAKING

by J Robert Hall

reprinted by Lindsay Publications

In 1943 Hall was the Instructor of Patternmaking and Foundry at the Santa Monica Technical School in California. Judging from his book, he must have been more a man of action than words. You get dimensioned drawings, molding diagrams and photographs while text is held to a minimum.

You get 89 lessons that can't all be listed here. Each lesson, or chapter, starts with the words "How to". You'll discover how to sharpen a gouge, measure lumber, use runners and gates, lay out and cut square holes, use leather fillets, use templates, lay out and cut a true round or ball, make cores, make and use face plates, use wing core and wing prints, use babbit anchors, use balance cores and chaplets in core work, make a medium or large spur-gear pattern, use a cupola and crucible in metal melting, and on and on.

You get a large format book with 89 lessons, wall-to-wall illustrations, including dimensioned drawings of patterns of useful castings such as bearing caps, a hand lever for a machine, a crank, a foot pedal, a hand wheel, a pulley, and dozens more.

You'll visit three different foundries to watch molders ram up molds, to see their inventory of stock patterns, and more.

A great teacher and a great reference from a more modern perspective! If you melt metal, you need patterns to make molds. This is a valuable book to have in your foundry library. They don't get much better than this. Grab a copy. 8 1/2 x 11 softcover 188 pages No. 21095 \$14.95

TINSMITHS' TOOLS

SQUARING SHEARS.

These shears cut square and round stock to size. They are made of heavy steel and are very durable. The blades are ground to a fine edge and are set at an angle to cut square stock.

No. 1010 Will cut 1/2" to 1 1/2" stock.
No. 1015 Will cut 1 1/2" to 2 1/2" stock.
No. 1020 Will cut 2 1/2" to 3 1/2" stock.

FORMING MACHINES.

These machines are used for forming sheet metal into various shapes. They are made of heavy steel and are very durable. The rollers are ground to a fine edge and are set at an angle to form the metal.

No. 1030 Will cut 1/2" to 1 1/2" stock.
No. 1035 Will cut 1 1/2" to 2 1/2" stock.
No. 1040 Will cut 2 1/2" to 3 1/2" stock.

TUCKING MACHINE.

This machine is used for tucking sheet metal into various shapes. It is made of heavy steel and is very durable. The rollers are ground to a fine edge and are set at an angle to tuck the metal.

No. 1050 Will cut 1/2" to 1 1/2" stock.
No. 1055 Will cut 1 1/2" to 2 1/2" stock.
No. 1060 Will cut 2 1/2" to 3 1/2" stock.

TINSMITHS' TOOLS AND MACHINES

Peck, Stow & Wilcox Catalog Reprint

"Peck, Stow & Wilcox Company was probably the foremost manufacturer of tinsmiths' tools and machines in the world. This reprint of its 1900 catalog is especially well designed and complete as a commemoration of its hundredth anniversary.

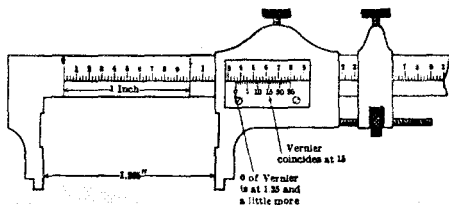
Every imaginable piece of equipment from formers and stakes to double seamers, folding and wiring machines are listed, described and illustrated, providing a most valuable reference."

Maybe you are a sheet metal enthusiast wanting to acquire equipment, and you need ideas. Maybe you collect unusual tools and have a machine you can't identify. Maybe you just want to duplicate an old machine because you can't afford a new one, or it just isn't being built. This book can help

You get page after page of beautiful, clear wood engravings of edging machines, double seamers, slip rolls, corrugating machines, sheet iron formers, squaring shears, rotary shears, snips, stakes, presses, roofing tongs and much more.

A visual delight! Great ideas and a great reference. Get a copy. 6x9 softcover 150 pages

No. 1392 \$19.95



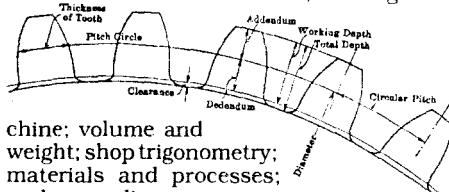
Machinist Math!

MATHEMATICS FOR MACHINISTS

by R W Burnham
reprinted by Lindsay Publications

As a dedicated user of mathematics, I'm convinced of math's power. If you're not using math, just the simple stuff, on a regular basis, you're missing out one of the most powerful (and low cost) tools ever developed. It's very simple. Machinists learn only what they need.

Chapters include: common fractions; decimal fractions; percentage; blueprints; measurements; constructions; powers, square root, significant figures, right-angled triangle; lathe work; threads; thread cutting; planer, shaper, drill press; simple machines; work, power, ratio and proportion, gear ratios, pulleys, belting; gear calculations; milling ma-



chine; volume and weight; shop trigonometry; materials and processes; and appendix.

You get great illustrations, simple explanations, and straight-forward problems to work with answers. I'm so familiar with math that I find it hard to believe that some people can bisect a line with a compass. But I'm sure there are. If you're one of them, get this book and learn. It's easy and no one will ever know the difference.

This is useful. Learn to figure gears needed to cut a thread on the lathe. Learn to figure cutting speeds. Find the angle of a taper. Layout the largest possible square in a piece of round stock. Find the horsepower of a steam engine.

Again, this is very basic. If finding the circumference of a circle is a problem for you, get this. It will gently walk you through the most basic math you need. This is for the guy who feels completely lost

in the world of math. If that's you, get a copy of this. You'll find it's a lot more than just a white cane! I think you'll find it's not a complicated as many people believe.

I think you should really know much more than what's in this book, but this a great place to start. This excellent book first appeared in 1915, was updated and reissued in 1943, and is now in the public domain and available to us all. If you need the simplest math, I give this a very high recommendation. Think about it. 5x7 softcover 253 pages

No. 21680 \$11.95

Metal Plate Work

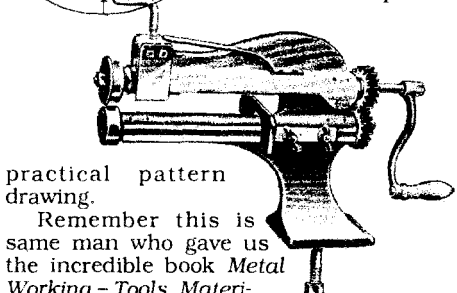
Great book from Hasluck!

PRACTICAL METAL PLATE WORK

by Paul N. Hasluck
reprinted by Lindsay Publications

Oh, I know what you're thinking. "Metal Plate" — quarter inch and thicker. Wrong! Very wrong! This dude was British. What he was talking about was sheet metal, and how to turn it into something a bit more exciting and, to my way of thinking, more useful than furnace duct work.

Chapters include the materials used; geometrical construction of plane figures; geometrical construction and development of solid figures; tool and appliances used; soldering and brazing; tinning, re-tinning, and galvanizing; examples of practical metal plate work; and examples of



practical pattern drawing.

Remember this is same man who gave us the incredible book *Metal Working - Tools, Materials, and Processes for the Handyman* described elsewhere in this catalog. That book provides an excellent chapter on sheet metal, but this provides much more information, much more detail.

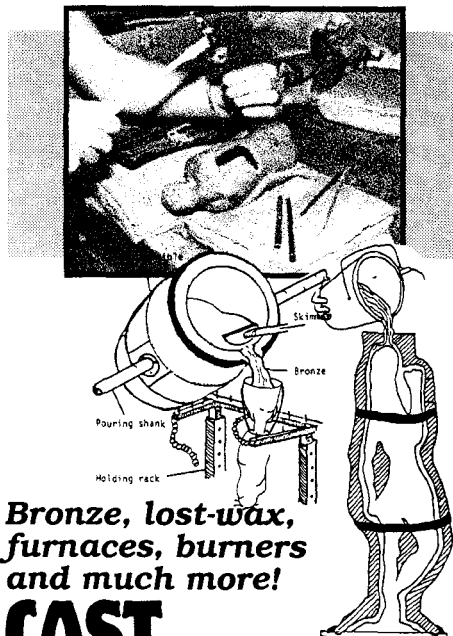
You'll see all the stakes, hammers, punches, groovers, and shears you could want. You'll also see a burring machine (or Jenny), bench standards, tube bend rollers (slip roll), a folding machine (brake), a bottom-closing machine, a panning down machine and much more.

You'll be shown how to make trays and bread pans. If you can do that successfully, you're on your way to building tools boxes of your own design. More difficult is the fabrication of a sauce pan, a ship's ventilator (air scoop), an oval bottom tea kettle and more. Once you have completed these lessons, you should be able to fabricate almost anything.

To get from flat sheet metal to a water tight three dimensional container requires a good pattern. You'll be shown all the necessary geometry to lay out the pattern without heavy theory.

This is practical how-to that was part of Hasluck's "Technical Instruction Series" of books. It's all straight-to-the-point and practical. If you work sheet metal, or plan to, this is something to have. Get a copy!

5 1/2 x 8 1/2 softcover 160 pages
No. 21591 \$9.95



Bronze, lost-wax, furnaces, burners and much more!

CAST SCULPTURE!

METHODS FOR MODERN SCULPTORS
by Young and Fennell

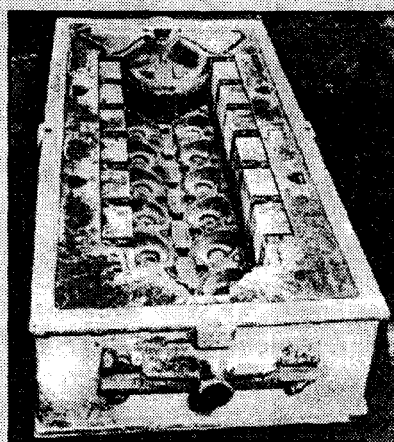
Sculptors will find this valuable, but the lost-wax casting information is great! Includes: waxes and sprues, mold making, ceramic shell casting, dewaxing, the melt and the pour, chasing and cleaning, polishing and patination, patinas for metal, plus lists of suppliers, books and more.

Very little is left to the imagination. You get plans for furnaces, valves, burners, techniques for spruing, venting, and all the rest. You get many, many formulas for patination (coloring) of the final casting. Sculptors work in bronze (close relative of brass) but there is mention of other metals too.

Well done book. If you're into lost wax, get this. If you're interested in general foundry, consider it. It covers much of the same material as other books, but every book is a little different. Worth having.

5 1/2 x 8 1/2 softcover . 294 pages.
No. 1257

\$16.95



Melting & Casting ALUMINUM

MELTING & CASTING ALUMINUM
by Robert J Anderson

You get five chapters (the only really good chapters) from a huge 1925 engineering text covering melting practice, production of secondary aluminum (in other words, recycling scrap), foundry practice, casting losses and defects, and the production of die castings with permanent molds.

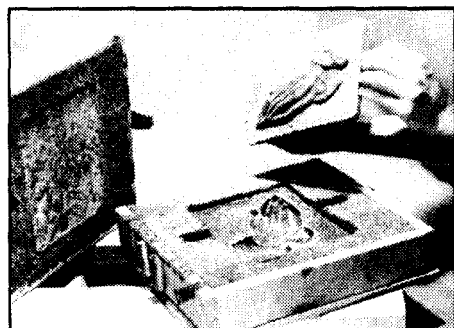
There are probably newer alloys and better ways of handling them developed, but aluminum is still aluminum, and for the low-tech applications we generally come up with, this book gives really detailed solid information that is otherwise hard to find.

You'll find discussions of fluxes, refractories, ways of evaluating scrap, pouring procedures, measuring pouring temperatures, how to cure porous castings, and much more. You'll find the die casting chapter covers the molds, their use, and troubleshooting. This is some of the most practical diecasting information I've run across yet.

If you pour aluminum, you should have a copy. You're sure to learn something that will help you improve your work. Order a copy. 5 1/2 x 8 1/2 softcover 253 pages

No. 4597

\$9.95



Cast Objects of Beauty

ORNAMENTAL METAL CASTING

by Robert Whitmoyer

Melting metal and pouring castings is an extremely valuable skill when designing and building machinery. But casting metal can be a whole lot more than that!

Whitmoyer will show you how to take Gingery's charcoal furnace and push it into new areas.

You'll learn how to build and operate a charcoal furnace capable of melting 2 1/2 quarts of

aluminum. You'll learn how to make a beautifully simple, yet easy-to-handle crucible, flasks, a molding table, and all the other components you'll need.

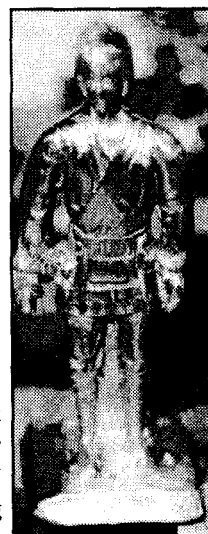
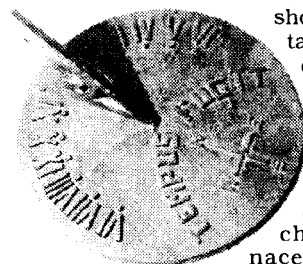
You'll learn how to mold and cast plaques, a sundial, solid figurines, penny bank replicas, and a large fountain that would cost you a fortune to buy.

One of the strongest points of this book is the info on lost wax casting techniques. You'll learn simple techniques of using plaster-of-Paris to make incredibly detailed castings. Wait until you get a good look at the chess set he cast! Beautiful work!

If you love casting metal, you must get a copy of this. It will round out your abilities and will enable you to cast objects that might be a whole lot easier to sell than something like indexing heads. In other words, the skills here could make you some money on the side. Excellent book! Loaded with photos and drawings. Great how-to! Get a copy!

5 1/2 x 8 1/2 softcover 92 pages
No. 4430

\$9.95



BUILD A DAVE WIMBERLEY FORGE

HOW TO BUILD A FORGE
by David Wimberley

Let Dave Wimberley show you how to convert a standard water heater shell and old vacuum cleaner into a quality blacksmithing forge for very little money. This 20" diameter firebrick-lined design requires no welding and has a hood that with careful installation will allow you to operate the forge indoors without asphyxiating yourself.

Dave will show you how to use standard plumbing fixtures to pump in the air blast. He'll show you how to line the steel basin



with firebrick and how to lay out the conical hood. He'll even show you how to make a refractory fire cover that makes the forge safer and more convenient to use. The only special tool you'll need is an abrasive cutoff blade for your power circular saw.

Here's an excellent proven design presented in an easy-to-understand fashion with excellent drawings and photographs. Set up a blacksmith shop and pound iron! Excellent plans! Order a copy today! 5 1/2 x 8 1/2 booklet 15 pages

No. 845

\$4.50

SOUTH BEND LATHE BOOKLETS

SOUTH BEND LATHE BOOKLETS

by South Bend Lathe Works

reprinted by Lindsay Publications Inc

In addition to *How to Run a Lathe*, South Bend also published small booklets ranging from eight to twenty-four or more pages, each booklet dedicated to a particular topic. I was able to acquire eight of the most popular 1936 booklets from a customer like you.

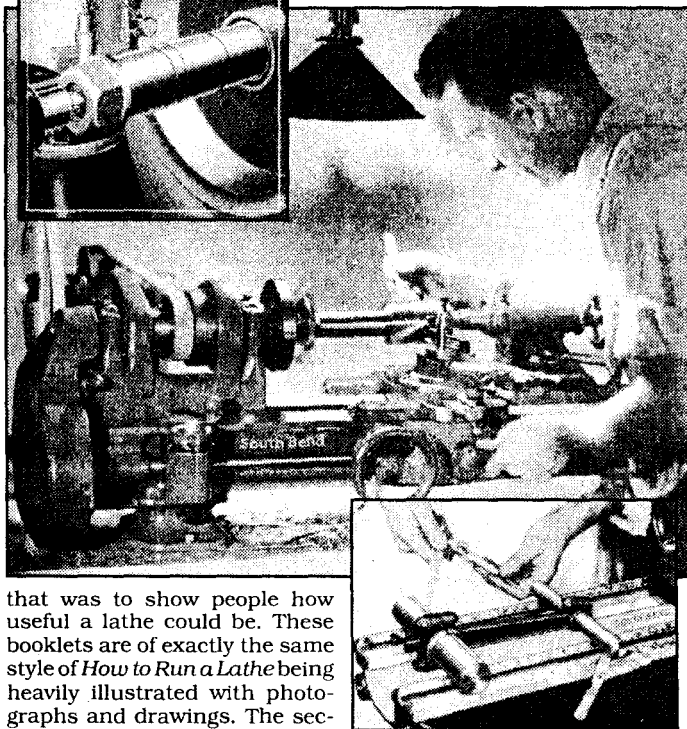
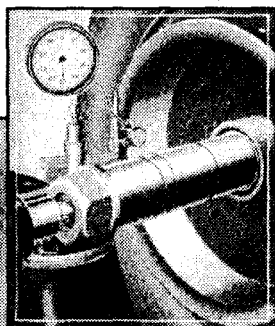
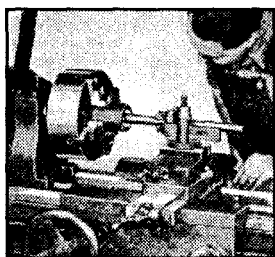
To publish each individually would have made them far too expensive. So to keep the price down I took all eight and reprinted them in a single cover.

In one volume you get

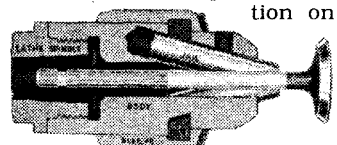
• How to Grind Valves, Sharpen Reamers and Cutters in the Motor Service Machine Shop

- How to True Brake Drums of Automobiles, Buses, and Trucks
- How to Test and True Differentials
- How to Bore Rebabbitted Connecting Rods
- How to Make Bushings
- How to Finish Pistons
- How to Grind Lathe Cutter Bits
- How to Cut Screw Threads in the Lathe

Obviously, South Bend was very much interested in promoting its products, and they knew the best way to do



that was to show people how useful a lathe could be. These booklets are of exactly the same style of *How to Run a Lathe* being heavily illustrated with photographs and drawings. The section on



material.

Great stuff! Excellent illustrations. Fun reading. Useful how-to. This something worth having. Order a copy! 6x9 softcover 96 pages No. 21583 \$7.95

HOW TO RUN A LATHE 1942

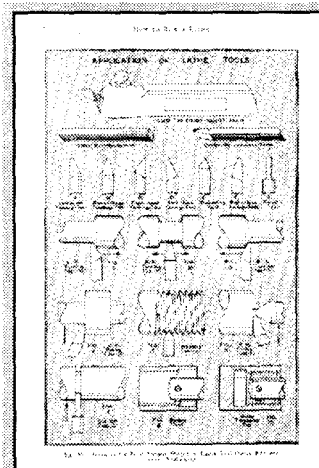
by South Bend Lathe Works

reprinted by

Lindsay Publications

Here it is! Finally!

South Bend Lathe still produces a modern edition of this book and will sell it to you at a price much, much higher than ours. We've reprinted this 1942 edition of "Run a Lathe" because copyrights on it have expired. It's new enough to be very similar to current edition, and yet old enough to be applicable to a lot of the older lathes still in use. I think you'll find that differences between this edition and the current editions are very few.



HOW TO RUN A LATHE

by South Bend Lathe

Bench lathes have not changed much in decades.

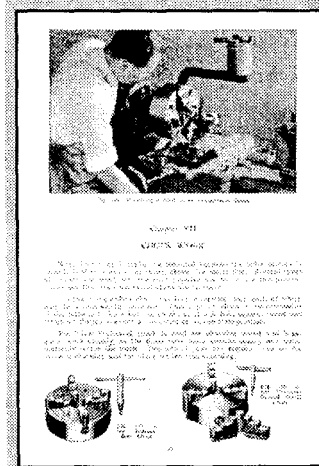
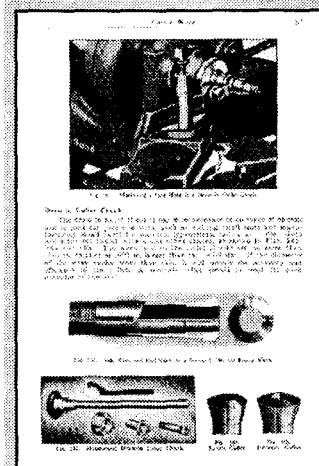
This is the lathe manual that Dave Gingery raves about, and a manual comparable in every way to Sheldon's lathe manual offered in our catalog. You get everything you could need to set up a lathe and get it running.

You get eleven chapters: history and development of the lathe, setting up and leveling the lathe, operation of the lathe, lathe tools and their application, hot to take accurate measurements, plane turning (work between centers), chuck work, taper turning and boring, drilling reaming and tapping, cutting screw threads, and special classes of work.

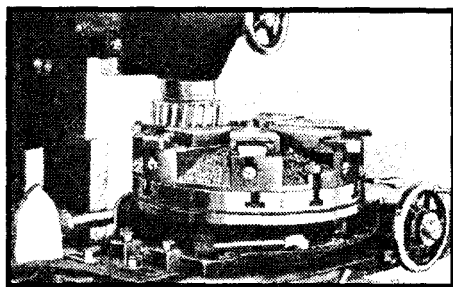
All the basics are here from sharpening drills to you can center drill to "superfinished" turned bearings, grinding valves, and turning multiple screw threads.

Remember, this is an introductory guide that was no doubt shipped with South Bend Lathes back then. Under no circumstances are you going to learn what is covered in "Advanced Machine Work". This will get you going. And if you're just learning to use a lathe, you have to have a copy of this or something very similar. It's the nuts.

This isn't the current edition. In fact, belt driving the lathe is still covered. But it's completely useful. Great book. Great illustrations. And finally, a great price! Get a copy. You can't afford not to have one now. 5 1/2 x 8 1/2 softcover 128 pages No. 21150 \$7.95



1942 Edition



Cincinnati's Treatise on MILLING AND MILLING MACHINES

TREATISE ON

MILLING AND MILLING MACHINES

by Cincinnati Milling Machine Co
reprinted by Lindsay Publications

In 1919 Cincinnati published this book to teach machinists about the significant changes and uses of milling machines that had resulted from World War One. Despite its age, this book can teach you a lot, too.

You'll find page after page of great photographs, drawings, and easy-to-read text that explains everything from the construction of milling machines and their installation, to the use of jigs, milling cutters, and indexing heads. You get loads of tables, simple and yet detailed explanations on how to make necessary calculations (should be easy with today's pocket calculators), and even tips on unusual milling jobs. And there is much more.

Although most of the examples are for horizontal milling machines, the vertical model is also shown and discussed. Most operations are common to both machines. You'll find that the lessons taught here are valuable regardless of the type of machine you have.

This is a gem of a book containing a wealth of information for any machinist — and that includes you. Put a copy in your machine shop reference library. It's excellent! 5 1/2 x 8 1/2 softcover 409 pages No. 20358 \$13.95

CONTENTS

Construction and Use of Milling Machines • Erection, Care and Adjustment of Milling Machines • Toolroom Millers — The Dividing Head, etc • Setting up the Machine • Analysis of the Process of Milling • Milling Machine Feeds • Speeds of Milling Cutters • Stream Lubrication — Cutter and Work-Cooling System • Milling Cutters — Notes on the Design & Efficiency of Modern Cutters • Cutter Sharpening • Power Required to do Milling • Various Methods of Milling • Milling Jigs and Fixtures • Sizing and Cutting of Spur Gears • Shop Trigonometry — Bevel Gears and their Calculation — Instructions for Cutting Spiral Gear Cutting — Calculations, Formulas, Tables, etc • Worm Gearing — Calculations and Methods of Cutting • Continued Fractions and their Application to Shop Problems — Angular Indexing • Change Gears for Cutting Spirals • Cams — Tables for Setting the Milling Machine for Milling Spiral Cams • Tables of Natural Trigonometric Functions

LATHE DESIGN

Design details of 1916 lathes and more...

LATHE DESIGN

Construction and Operation

by Oscar Perrigo

reprinted by
Lindsay Publications

We first reprinted this 1916 book over ten years ago, but discontinued it a few years back. We've now reissued it. It may be available for a year or two before we let it disappear again. With paper prices so high these days, these big books are becoming too expensive to print. I make you no promises how long we'll carry this.

Chapters include history of the lathe up

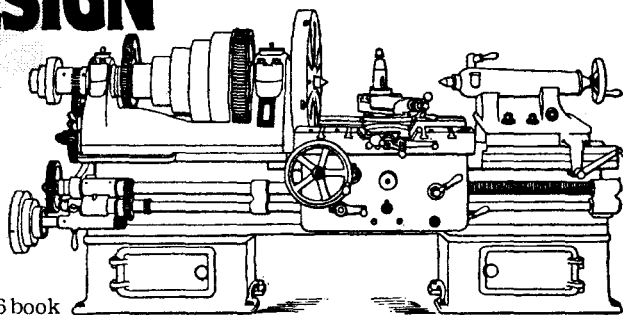


FIG. 241. — 24-inch Swing Engine Lathe built by the R. K. Le Blond Machine Tool Company.

ing everything from a modified parabolic lathe bed to a test piece for ascertaining if the head-stock spindle is parallel with the V's. You'll see engravings of various (but far from all) lathes such as the 20 inch swing turret head chucking lathe built by F. E. Reed Company.

This is a great book for lathe fanatics and machinery nuts (couldn't be YOU I'm referring to, could it?). Lots of pictures, lots of information on all kinds of lathes, and lots of ideas and useful info. It's a time machine and almost an encyclopedia. Expensive but useful and entertaining. Think carefully about getting a copy. Put it on your charge card. Get a second mortgage. Sell the ol' lady to the gypsies. I don't care. Just get a copy. You'll like it. (Oh, and be sure you tell the gypsies you're selling her as is...) 5 1/2 x 8 1/2 softcover 469 pages

INTRODUCTORY PRICE
through May 31, 1996
No. 4180 \$19.95

THEREAFTER
No. 4180 \$24.95

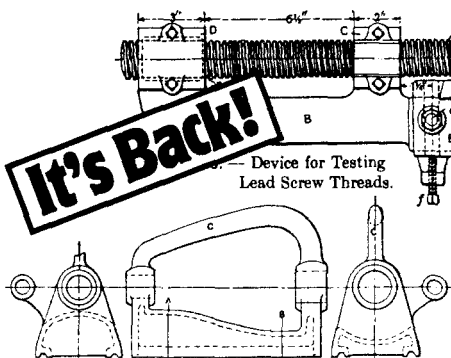


FIG. 64. — Special Form of Hendey-Norton Head-Stock.

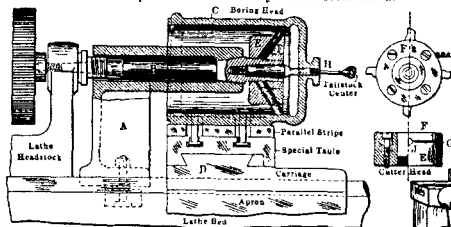


FIG. 217. — Cylinder Boring in the Lathe.

to the introduction of screw threads; the development of the lathe since the introduction of screw threads; classification of lathes; lathe design: the bed and its supports; lathe design: the head-stock casting, the spindle and the spindle cone; lathe design: the spindle bearings, the back gears and the triple gear mechanism; lathe design: the tail-stock, the carriage, the apron, etc; lathe design: turning rests, supporting rests, shaft straighteners, etc; lathe attachments; rapid change gear mechanism; lathe tools, high-speed steel, speeds and feeds, power for cutting-tools, etc.; testing a lathe; lathe work; engine lathes; heavy lathes; high-speed lathes; special lathes; regular turret lathes; special turret lathes; electrically driven lathes; and practical instructions on lathe operation.

Covering the almost 500 pages are three hundred and forty-one engravings illustrat-

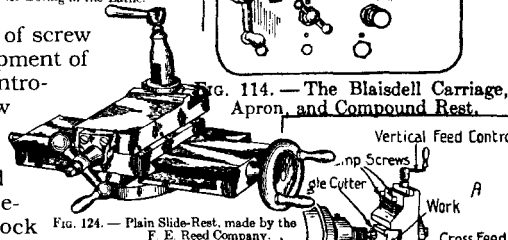


FIG. 124. — Plain Slide-Rest, made by the F. E. Reed Company.

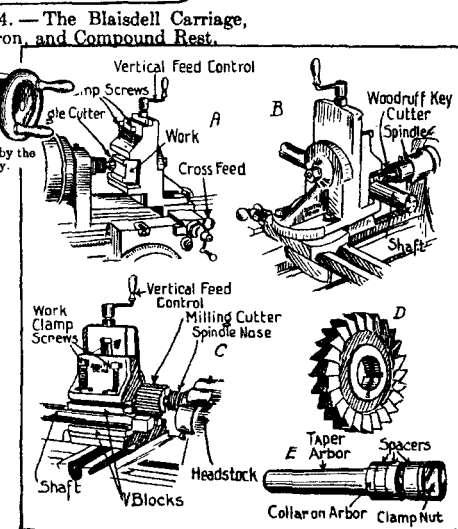


FIG. 324. — The South Bend Milling Attachment and Its Use.

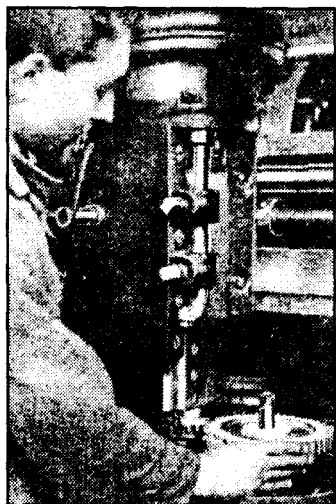
CUTTING GEARS!

GEAR CUTTING PRACTICE

by Colvin & Stanley
reprinted by Lindsay Publications

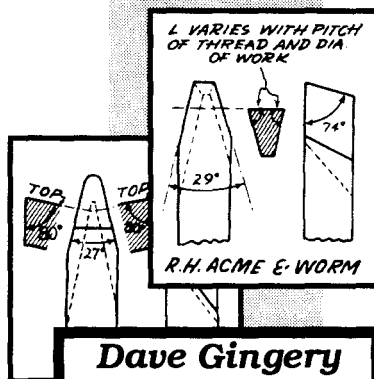
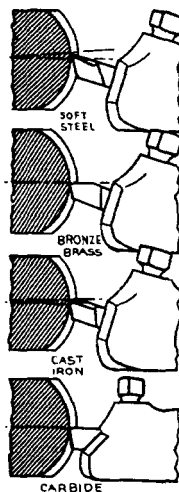
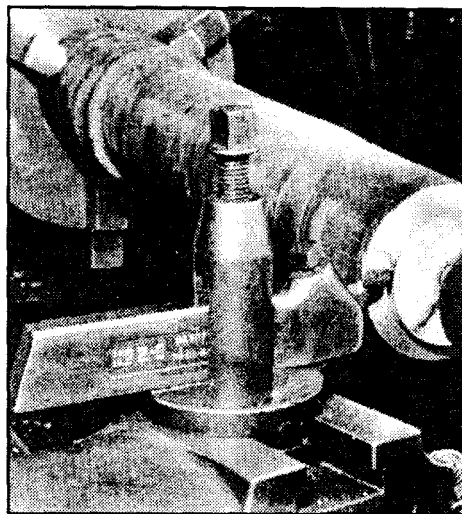
The high gods of the machine shop, Mr. Colvin and Mr. Stanley, will teach you how to cut gears in this reprint of their 1937 text, subtitled "Methods for Producing Gears for Commercial Use."

Chapters include gear cutting practice, spur gears and circular cutters, shaping method of cutting gears, helical and herringbone gears, hobs and cutters, bevel gears, worms and worm gears, internal gears, heat treatment, burnishing, shaving, lapping and grinding gear teeth and more!



This book was written for industry so there will be a lot of material you can't use. But it's better to get too much info rather than not enough. You'll get an education in gear geometry, the best alloy compositions to use for gears (in 1937), specs on keyways, using the dividing head, comparison of hobbing versus milling gear teeth, commercial hobbing machines available, vertical shapers designed for cutting gears, details on hobs, their use and sharpening and on and on.

You get charts, tables, nomographs, photographs, drawings, and more. It's heavily illustrated. Again, you'll see a lot of big machinery since this is an industry text. If you cut gears or ever intend to, this reference will teach you something practical even if you only have a 3" lathe with a milling attachment. A standard work by the standard dynamic machine shop duo: Colvin & Stanley. Get a copy! 5 1/2 x 8 1/2 paperback 344 pages No. 20889 \$14.95



Care and Operation of a Lathe

THE CARE AND OPERATION OF A LATHE

by Sheldon Machine Co. Inc.
reprinted by Lindsay Publications

For years the best little lathe handbook available was "How to Run a Lathe" by South Bend Lathe. Not long ago, South Bend apparently decided to get out of the book business by more doubling the price of the book and by refusing to give any reasonable wholesale discount to dealers like me. In my opinion, the handbook became very expensive and lost its appeal overnight.

Now there's another source for the same great information.

One of South Bend Lathe's competitors in 1942 was Sheldon Machine Co of Chicago. Sheldon saw the value of South Bend's manual and apparently knew it had to publish its own. What resulted was a booklet every bit as good as South Bend's, if not better.

We've reprinted the Sheldon manual, and our edition sells at a fraction of South Bend's. Now you can get the same great information at a bargain price once again!

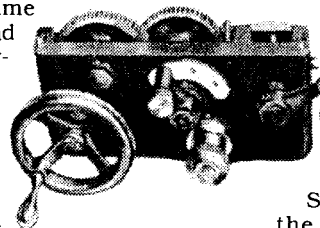
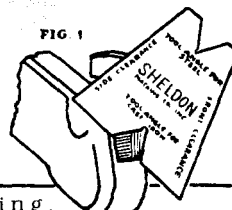
Chapters include: the modern back geared screw cutting lathe, the basic parts of a lathe, the theory of metal cutting, grinding cutter bits for lathe tools, uncrating and setting up a lathe, oiling the lathe, setting up lathe tools, setting up the work on centers, turning, facing,

knurling, thread cutting, drilling, boring, cutting off, and more. You get directions on mounting work in three and four jaw chucks, drilling and countersinking centers, "Running-In" the lathe, discussions of the variety of tool holders, use of collets, tool-post grinders and much more!

No doubt, every new Sheldon lathe shipped out included a copy of this little instruction manual. You may not own a Sheldon lathe, but the small Sheldon lathe was a generic machine very much like those of South Bend and a dozen other manufacturers. You'll find it useful no matter what lathe you use.

If you're just learning to use a lathe, this manual together with Fred Colvin's book, will certainly get you started. For every question these books answer, ten more questions will pop up, and that's when you start accumulating all the other books in this catalog!

Great book! Great illustrations! Great price! No lathe operator can afford NOT to have a copy of this. A gem of a handbook that should be beside every lathe. Order a copy today! 5 1/2 x 8 1/2 softcover 112 pages No. 21052 \$7.50



Dave Gingery Comments:

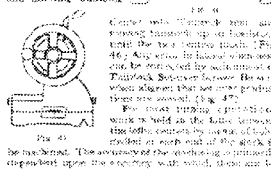
I've taken THE CARE AND OPERATION OF A LATHE to bed with me for the past few nights. I get lots of inquiries from people who have acquired older lathes. Obviously I can't afford to give my time to offering detailed answers even though I'd like to. Now all I have to do is to tell them to order this book.

My advice would be to read the book entirely before even turning the machine on. You really should not play with a lathe until you know what is in the pages of this book. Then use it as a training guide as you familiarize yourself with the machine. It will tell you how it's made and how it works, how to set it up, lubricate it and run it safely. Best of all it gives great instruction on tool-grinding and every basic lathe operation. And it displays plenty of detail on accessories so that you can easily make many of your own if you can't justify buying them. It won't be long before you are an able machinist. I'm grateful that such a book is again available.

Setting Up The Work On Centers



When setting up a lathe, the first step is to check the alignment of the lathe. This is done by using a dial indicator to check the runout of the lathe bed. The runout should be less than 0.001 inch. If the runout is greater, the lathe bed should be ground or the lathe should be replaced.



You get a compilation of metal lathe articles that ran in the pages of Popular Mechanics magazine in the early 1920's. The articles are

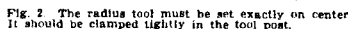


\$7.95

TAPER PIN

TAPER HOLE

Fig. 3. When turning long pieces, it is necessary to watch the dead center constantly and keep it lubricated. A great deal of trouble can be saved by this simple precaution.



\$13.95



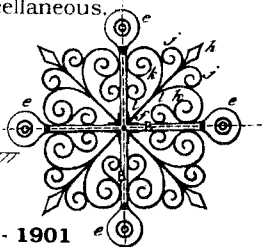
Other Hasluck Books BUT WHICH?

Paul N. Hasluck, author of the Complete Book of Metal Working, had earlier written a series of small books. We've already reprinted *Metal Plate Work*, but we have others. Which of these should we bring back first? Scribble your first choice on your next order and let us know. We'll tally the votes and take it from there.



BENT IRON WORK - 1902

Contents: bending and working strip iron; simple exercises in bent iron; floral ornaments for bent iron work; candlesticks; hall lanterns; screen, grilles, etc.; table lamps; suspended lamps and flower bowls; photograph frames; newspaper rack; floor lamps; miscellaneous.



BAMBOO WORK - 1901

Contents: bamboo - its sources and uses, how to work bamboo, tables, chairs and seats, bedroom furniture, hall racks and stands, music racks, cabinets and bookcases, window blinds, articles of bamboo, mailcart.

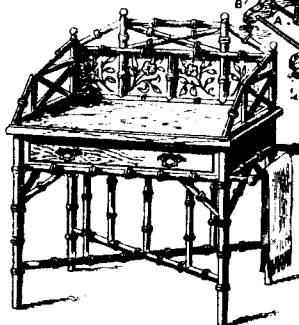
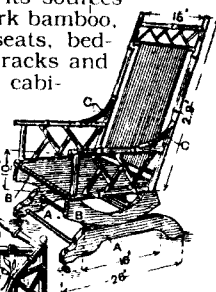
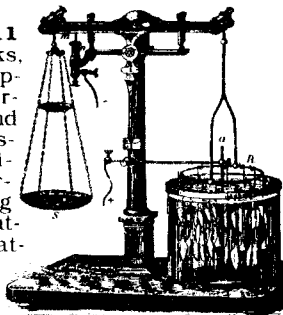


Fig. 82.—Bamboo Washstand.

ELECTRO-PLATING - 1911

Contents: tanks, vats and other apparatus; batteries, dynamos, and electrical accessories; appliances for preparing and finishing work; silver-plating; copper-plating; gold-plating; nickel-plating and cycle-plating; finishing electro-plated goods; electro-plating with various metals and alloys.



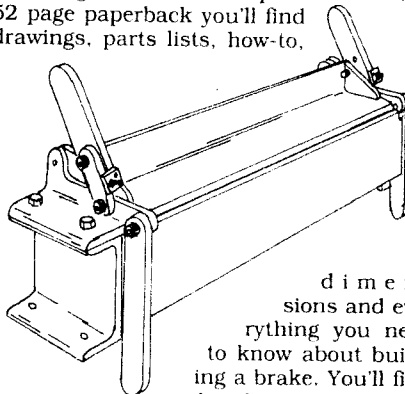
Build Gingery's Sheet Metal Brake

SHEET METAL BRAKE

by Dave Gingery

Build a brake and turn sheet metal into ducts, flashing for your house, boxes for tools and supplies — you name it. Dave told me he has built many brakes over the years some of which are still being used in industry.

You get far more than plans. Inside this 52 page paperback you'll find drawings, parts lists, how-to,



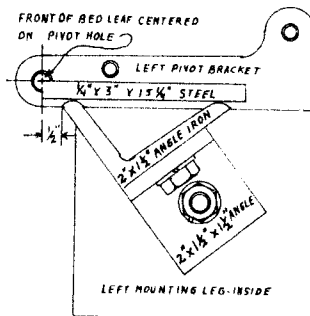
dimensions and everything you need to know about building a brake. You'll find the plans scaled for an

18" wide machine, but you will also learn how people have been scaled it up to much greater widths. Dave will even show you how to use the brake to make common joints and bends. You'll need an arc welder to lay a few beads.

People have written to say "that's my kind of book." And they're right. Dave takes you by the hand and shows you construction step-by-step, pointing what is and is not important in the design of the brake. You don't often see good plans for a brake, let alone good ones. So order a copy! 52 pages 6 x 9 softcover

No. 161

\$7.95



"I built a sheet metal brake using Dave Gingery's book and am extremely happy with the results. I scaled it up to twice the size and added truss bars and a modification to the bending leaf that allows me to form right angle ribs. I have about \$100 in it and it is far superior to the \$300 'home shop' units I have seen. They have screw-down holders for the clamping leaf, but the toggle levers on Dave's machine make any job ten times easier & faster! Thanks a million for the great books that you publish."

—Bernie Kuschel

Build a Carbon Arc Torch!

HOW TO BUILD A CARBON ARC TORCH

Pump a large electrical current between a slightly separated pair of carbon electrodes and you come up a 9000° F flame useful for melting metal, welding and brazing. Here Meador will show you how to build a carbon arc torch using wood, tubing and commonly available carbon electrodes. You really don't need much money or expertise to build an excellent working torch.

hole attaches the clamp ring to the threaded rod, and the other one holds a thumb screw. The clamp leaf floats freely inside the clamp ring. The thumb screw will tighten onto the clamp ring forcing it against one side of the carbon rod. This causes the carbon rod to be pinched between the clamp leaf and the clamp ring holding the carbon rod securely in place and making a good electrical connection.

The clamp ring is made first. Cut two pieces of 3/4" square steel tubing 1/2 inch long and clean off the burrs with a file. Drill two 13/64 inch holes into the center of two adjacent sides of each clamp ring as shown in Figure 10, and tap these holes for 1/4" - 20 threads. This completes the clamp ring fabrication.

Figure 10

The two clamp leaves are a little more complicated to make. Figure 11 shows how the two clamp leaves look after they have been cut out.

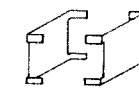
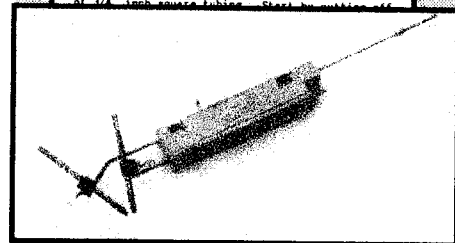


Figure 11

Both clamp leaves are made from one section of 3/4 inch square tubing. Start by marking off



You do need a source of high-amperage current such as an arc welder, but perhaps you could jury-rig another source such as a bank of auto batteries. (This could be dangerous, so be careful. You're on your own.) The maximum recommended amperage for a 3/16" electrode is 30 amps which is not much. On the other hand, 1/2" electrodes need up to 140 amps. But, then, what are you planning to do anyway? Braze two battle-ships together?

It's a nice little, inexpensive torch that you can assemble in a snap. Don's booklet is self-published, and it looks pretty good with photos and drawings. It's not a slick profession publication, but it does deliver. And the price is reasonable.

So build a torch. Use it to light up your movie lot, fry fish, or cauterize herpes lesions (although I don't think I want to be around to smell that!). You might even try using the torch to heat metal! Order a copy. 5 1/2 x 8 1/2 booklet 30 pages

No. 1349

\$6.95

METALWORKING

Tools, Materials, and Processes

by Paul N. Hasluck

reprinted by Lindsay Publications Inc

Every metal worker must have a copy this. This is top rate. Full tilt. I've never seen anything quite like it. This 1907 American edition of "Metalworking" has 760 pages and 2,206 illustrations covering just about anything you would want to do to a chunk of metal.

This covers so much I don't know where to begin. Under "foundry" you'll learn about building Faraday's blast furnace, a gas injector furnace, a brick-built furnace, an oil furnace, crucibles, flasks, sands and on and on.

"Smiths' Work" is not about the farrier's trade, but about decorative iron work - making beautiful iron flowers, gates, plant stands, fireplace firedogs, brass fire screens, fireplace fenders, and a score of other Victorian blacksmithing projects. You get descriptions of the tools and anvil, of course, but you'll also find an interesting



bending jig. The smithing chapter alone has 274 illustrations!

And on it goes: files, scrapers, buffing wheels, annealing furnaces, hardening and tempering equipment, drills, boring bars, and much more. You'll learn about the torches, bellows, furnaces, hearths for brazing and riveting.

The chapter on forging is more what we consider blacksmithing today: the basics of manipulating iron by heating and hammering.

The sheet metal chapter is a gem. With 177 illustrations you'll learn to make everything EXCEPT ventilation ducts. You make a small oil cook stove with oven, a deed case, a "coal vase" (decorative coal scuttle), a sizeable traveler's trunk, a drainer, a square copper tea kettle, and much more. Incredible!

Once you've spent a life time learning all of this, you can

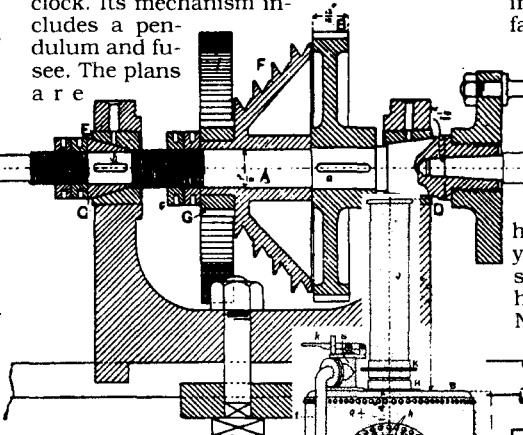
begin repousse: the decorative embossing of sheet metal. You can make decorative picture frames, lock plates, canopies for fireplaces, and more.

You get brass work, discussions of lathes and their tools and use (237 illustrations here alone!), metal spinning techniques and projects, tool construction, and on and on.

You'll be shown how to build the treadle-driven 4 1/2" lathe with a 4' 6" bed complete with headstock, tailstock

and slide rest. This chapter could be a book in itself, and I don't know where you'll get the castings unless you make them yourself.

After you make some jewelry, you can make a simple eight day, 18" high skeleton clock. Its mechanism includes a pendulum and fusee. The plans are



not dimensioned and discussion is necessarily brief. But there IS enough for a clock fanatic.

Fortunately there is much more detail when it comes to building the horizontal steam engine. With a 2" bore and 4 1/2" stroke at 50 psi, you're should get 1/4 hp off the 16" flywheel. Great stuff!

The vertical steam engine can be built on a 3 1/2" backgeared lathe, and generates 1/4 hp at 60 psi, 300 rpm and a cut-off at 5/8 of the stroke. The 1 1/2" diameter piston travels 2 1/4" on each stroke. You get loads of dimensioned drawings. And this is a governed engine, too.

Build three different boilers. You can build a model horizontal boiler 13" long and 7" in diameter. Or fabricate a small vertical boiler 24" tall and 12" in diameter that can generate 1/4 hp of steam. I don't want to be around when you decide to build the 8 hp boiler that stands 8' tall with 4' stack on top of that.

This mother is 3 1/2' in diameter, is riveted, and looks like more than I would ever want to

tackle.

Build a gas engine with a 2 1/2" piston and 2 1/2" stroke. This 1 1/2 hp air-cooled engine weighs about 25 lb and is suggested for use on a bicycle.

The 18" diameter water wheel will develop 1/4 hp at 30 psi and as much as 3/4 hp at 90 psi.

The dynamo/motor will generate or consume 50 watts of power.

You'll find talk about silver, copper, and gold plating and brass gilding in the electroplating chapter. The wire working chapter is incredible in that you will learn how to make fancy wire screening of different lattices that we, today, think can only be made by machine. After you make the electric bell, you can make a brass stand microscope, and a four-draw telescope with an erector for terrestrial viewing (a "must-have" for all would-be pirates...).

Again, anyone who works metal must have a copy of this. The ideas in here will fire you up. You'll really like this. Top rate. I can't say enough about this one. Get a copy. 6x9 hardcover 760 pages 2,206 illustrations No. 21265 \$29.95

1907 Classic!

CONTENTS:

- foundry work • smiths' work • surfacing metals • polishing metals: the machines and processes • annealing, hardening, and tempering • drilling and boring • taps, screwplates, and dies • soldering brazing and riveting • forging iron and steel • working sheet metal • repousse work • oriental decorative brasswork • finishing, lacquering, and coloring brass • lathes and lathe work • spinning metals on the lathe • tools for measuring and testing metalwork • building a 4 1/2 in. centre lathe • gilding and silver working • making a skeleton clock • building a small horizontal steam engine • making a 1/4-hp vertical steam engine • boiler making • building a petrol motor • making water motors • building a dynamo and electric motor • electroplating • wire working • electric bell making • making a microscope and telescope.

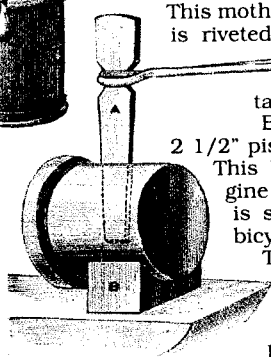
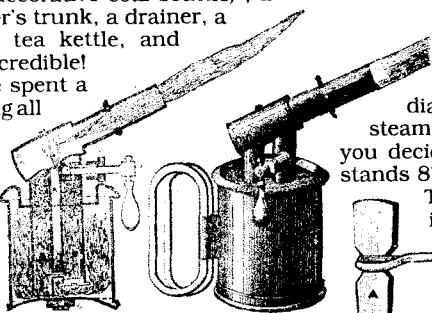
DAVE GINGERY WRITES:

Metalworking is nothing short of a dream-come-true for anyone beginning to put together a home shop...

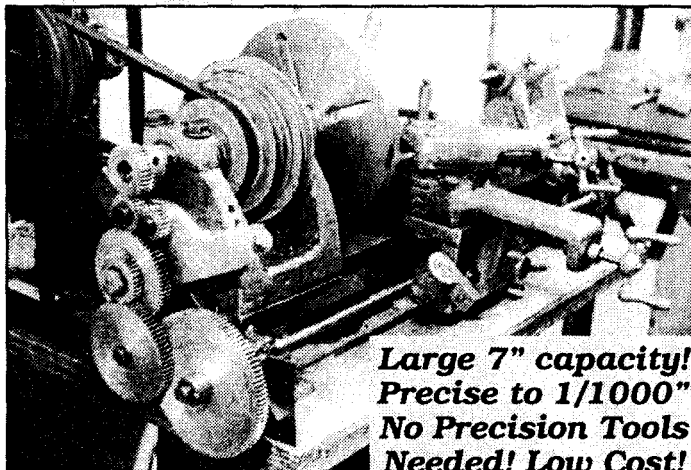
I thought the Foundry Work section lacking in some details of practice and procedures. But the discussions of various types of furnaces makes up for any lack elsewhere. Wish I had seen this section when I was putting my foundry together years ago....

Naturally I appreciate the section on lathes and lathe work. And the chapter on building a lathe is by itself worth the price of the book. So also the details on tooling, attachments and accessories...

Every shop bird should order a copy of this one. And if he's dumb enough to len books, he should order two or more copi because few people would return this or



Build Dave Gingery's Metal Lathe!



**Large 7" capacity!
Precise to 1/1000"
No Precision Tools
Needed! Low Cost!**

BUILD A METAL LATHE

by Dave Gingery

Build a sturdy, precision metal cutting lathe for much less money than you'd pay for one of those "toy" lathes on the market. The only precision measuring equipment you need is a feeler gauge. You DON'T need any machine tools. In fact, Dave built the two prototypes for less than \$50 each just a few years ago!

Your lathe will have a 7" swing over the bed, about 5" over the saddle, with 12" between centers. You can bore the headstock spindle and tailstock to No. 1 Morse taper if you wish. You can scale it up but you'll need larger castings than the charcoal foundry can provide.

I had a chance to use one of the prototypes. After a pass across an 8" long steel bar, my micrometer showed a taper of less than .001". Not bad for a \$50 homemade lathe!

Castings from your charcoal

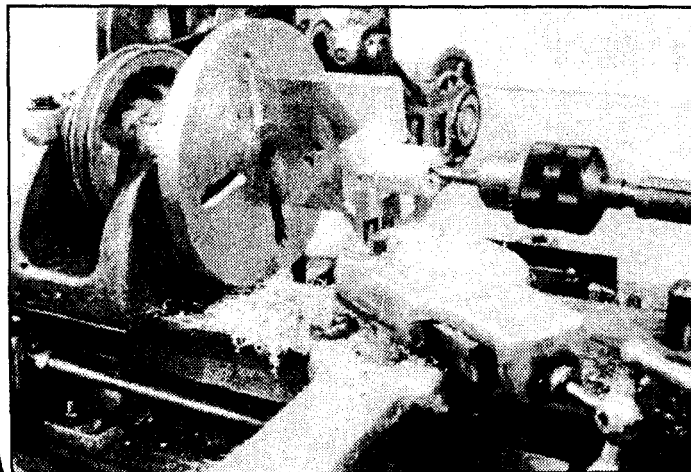
foundry are the secret of building a quality lathe. The only tools you need are an electric drill, files, and other handtools along with a very simple homemade disc grinder fully described in the book. A table saw is very handy for making patterns, but not absolutely essential.

You will use this simple lathe to build the metal shaper, milling machine, drill press, and the fancy accessories. You get no chuck or screwcutting gears. Dave will show you how to build them an much more in the book on deluxe accessories. They make life easy, but Dave will prove that they're not absolutely essential.

Can't afford to buy a lathe? Then build one. It doesn't take much money, just lots of hours. And just think of the bragging you could do! Order a copy today! 5 1/2 x 8 1/2 softcover 128 pages heavily illustrated.

No. 177

\$9.95



BUILD DELUXE MACHINE SHOP ACCESSORIES!

Indexing Head • Face Plate • Steady Rest • Change Gears • Mandrels • Chucks • More!

DIVIDING HEAD & DELUXE ACCESSORIES

by Dave Gingery

Now that you've built the lathe, shaper, milling machine, and the drill press at almost zero cost, it's time to build the fancy accessories.

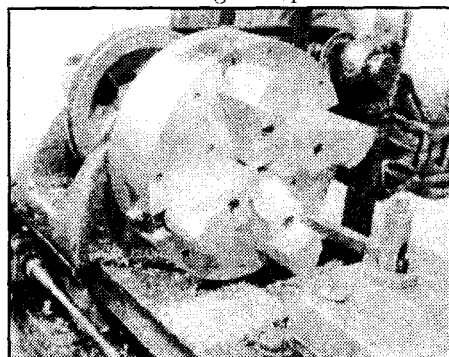
Chapter one covers "Tooling Up." You get a list of supply sources and helpful books, a review of basic tooling, and a series of simple lathes tools: compact clamp dog, heavy face plate, homemade hand reamers, a set screw chucks, expanding and threaded mandrels for facing gear blanks and for cutting teeth, plus

standard 40 tooth worm gear, providing all divisions through 50 and all even and multiples of 5 through 100. Many other divisions up to 1960 are possible, and it's easy to make a special plate for an unusual job. You'll be shown how it works, why it's so accurate, and how to build it and use it. The directions for drilling the fraction plates are especially valuable because they can be adapted to building a variety of other indexing fixtures.

Next, you'll cut professional quality change gears to add screwcutting capability to your

homemade lathe. It's easy to machine the blanks to correct size and mill the tooth spaces. Dave will show you how to make gear cutters for about 50¢ each!

Finally, you'll be shown how to install these gears. A conven-



a simple fixture for tapping truly perpendicular holes by hand.

The second chapter will show you how to build a simple two-jaw chuck that can be self-centering for repetitive work and a four jaw chuck with independent reversible jaws. Like Dave says, "You'll be glad you didn't blow your bait and beer money on a chuck when you see how easy it is to build one."

Next, you'll build a steady rest. This almost-essential accessory expands the capacity of the lathe for work that is too long to be mounted between centers. It's worth many times its small cost.

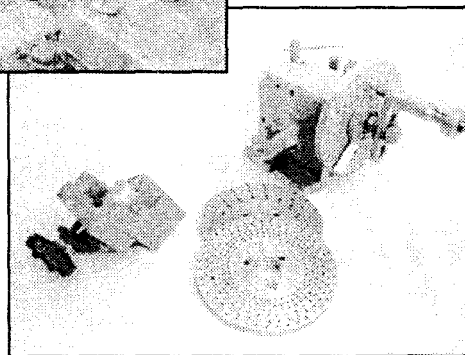
Then, you'll build the dividing head that serves as a rotary table, too. Few home shops have such an accessory, but you will. This beauty is built around a

tional tumbler plate provides left hand thread cutting, while the basic set of gears cuts all threads of standard inch sizes from 8 to 80 tpi. A fine feed range from .0025" per revolution to .005" is also provided. You even get a threading indicator for the carriage so that you can engage the split nut at the proper moment. It really is easy to add change gears once you know how, and Dave will show you everything.

Incredible quality! Rare how-to! Order a copy today. 5 1/2 x 8 1/2 softcover 159 pages

No. 1153

\$9.95



**Build
Dave's
Incredible**

Metal Shaper!

BUILD A METAL SHAPER

by Dave Gingery

You may have heard that shapers are obsolete. Say that to someone who owns one! I dare you!

Truth is, there is hardly a cheaper, quicker way to cut keyways, splines, gears, flat and angular surfaces, dovetail slides, irregular profiles and more. Most of this can be done on a milling machine, but often the milling machine must use an expensive cutter. A shaper, for instance, can use a 50¢ piece of tool steel to cut gears. Forget the expensive cutters.

You can build an excellent metal shaper with a 6" maximum stroke and a mean capacity of 5" by 5". The tool head rotates through 180 degrees for angular cuts, and features a graduated collar with a simple lock. The down feed has a graduated collar, and the exact stroke length can be set. Your shaper will have variable speed, automatic variable cross feed and adjustable stroke length. It will be a machine worth bragging about.

You get all the pattern plans, all the secrets, and all the details. You'll need the charcoal foundry and Gingery's metal lathe or its equivalent. Like Gingery's other books, this one is jam-packed how-to. Great book! Order a copy of this classic!

5 1/2 x 8 1/2 softcover 144 pages heavily illustrated
No. 187

\$9.95

Fine Old Manuals

Gentlemen,

Keep producing your fine "publications". I have my own home complete cachine shop (36 yrs) and graduated from Patton Masonic Trade School in Elizabethtown, PA 1943. Yours is the only source of these fine old manuals and books which have long since passed from print sadly. Thank you again.

Wayne L. Goho Camp Hill PA

**5" x 5" Capacity
6" Stroke
Versatile!
Powerful!**

Dave Gingery Works Sheet Metal!

**Do amazing work with
the simplest tools...**

WORKING SHEET METAL

by Dave Gingery

Dave will take a hammer and a tree stump and show you how to make useful objects from sheet metal. This book is a quick lesson in basic sheet metal work as only craftsman Dave can teach it. He'll show you how to build a sturdy workbench and equip it with a simple bar clamp that will allow you

to do all kind of fancy things you would have never believed possible.

Then you'll learn all the basics such as cutting sheet metal and sinking using a block made from a tree stump. Learn about joining and edging - the flat lap, pipe lap, corner lap, double corner lap, pocket seams, Pittsburgh seams, the grooved seam and more. He'll show you how to build a simple hand groover tool and a hand folder. You can do tab seams, double lock seams and more. Make a flange starting tool. Learn how to raise a flange on a disc and a cylinder. Dave will show you wire edging and other edge treatments.

Chapter 4 reveals patterns and layout. This can be confusing

until you see it, and then you never forget it. And Dave can show you how its done - simply. This stuff is important if you're going to build tool boxes, trays, flues for a blast furnace, a pitcher with a flared top, and so on. And yes, he'll show you to layout a complex transition piece from rectangular flue to a circular one.

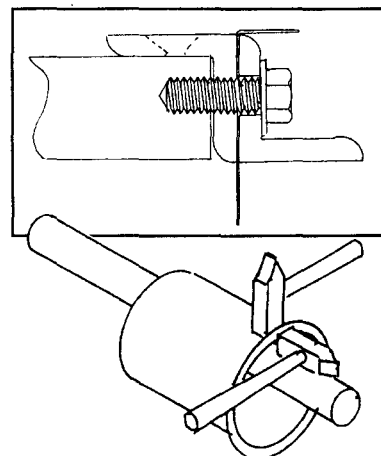
Finally, you'll learn how to fabricate a replacement for a gas tank. He'll show you how to redesign it so as to make it as simple as possible.

This is not the be-all and end-all of sheet metal books.

Dave will tell you that. But if you're as ignorant of sheet metal work as I am, this is the place to start. The price is right, and there is NO doubt that the author knows what he's talking about.

This is another Dave Gingery book. Do I need say more? Get a copy. 5 1/2 x 8 1/2 softcover 90 pages
No. 1334

\$8.95



Dave Explains His Book...

This book was inspired when someone gave a friend of mine a furnace. Local sheet-metal people all wanted \$1000 or more to install it. My friend is almost as stingy and tight-fisted as you and I so he didn't go that route. Instead, I picked up a couple of sheets of galvanized metal, a couple of joints of prefab duct and fist full of "S" slips and drives and we did the job in a half day for less than \$75.00. ...We didn't have any of the fancy equipment for the job but we did it any way. That's what this book is about.

No photos of exotic equipment in these pages. And no instruction in using press-brakes, leaf brakes, slip-rolls, bar-folders, turning machines, edgers, crimp-

ers, lockformers or any of the commercially built equipment found in commercial shops... Instead, this book shows you how to do the work without machines.

Sheet metal work was my second trade and I worked for years... So here I am showing how to produce what you need without the machines, and there is hardly a limit to what can be made.

The chapter on layout is brief but it covers all the basics. It would be no trouble at all to write 500 pages on pattern problems and examples alone. But that has been done very well by many [others] in the past. My message is that the principles are few and simple.

Colvin: Running a Milling Machine!

RUNNING A MILLING MACHINE

by Fred H. Colvin

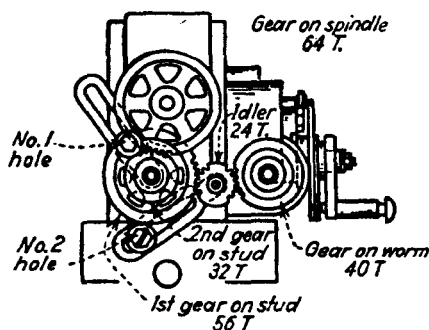
reprinted by Lindsay Publications

Colvin, "Mr. Machine Shop", writes in the preface:

"Although this book is by no means a complete treatise on all the problems of milling machines and the large variety of work that is done on them, it makes clear the general construction of the different types of machine and gives a general idea of the kind of work they do. It shows how the different machines operate, points out the necessity of having the work firmly clamped and the cutters sharp, and gives the foundation of the knowledge necessary to become a first-class milling-machine operator.

Beginning with the hand milling machine, which is the simplest machine of this type to learn how to operate, the book shows the other and more largely used kinds, gives the names of the principal parts, and shows a variety of the work that is done on them..."

This is a great companion to "Running an Engine Lathe" that was first published in 1941. Chapters include milling machines and their parts, examples of milling machine work, milling cutters, speeds and feeds of milling cutters, setting cutters for different kinds of work, milling vises and fixtures, the dividing head, a wide-range dividing head, and cutting helices sometimes called spirals.



Although most of the milling machines illustrated are horizontal machines just like the machine Dave Gingery will show you how to build, the material here is general enough to be useful on any milling machine - horizontal or vertical or even on milling attachments for lathes.

Well illustrated. Useful info. Worth having. Get a copy! 5 1/2 x 8 1/2 softcover 157 pages
No. 20986 \$7.50

Build Dave's Precision Milling Machine

Rigid! Powerful! Far better than "toy" milling machines! And YOU build it!

MILLING MACHINE

by Dave Gingery

Dave can tell the story best:

"It's a horizontal miller, but it has the full range of vertical mill capability when used with the angle plate on the work table. Home shops will find a horizontal mill and a shaper to be not so nearly obsolete as the "experts" say, and even the smallest shop would soon outgrow one of those little toy vertical mills.

The work table 23/8" x 12" with a 3/8" T-slot, and it travels a full 12". The carriage travels 6 1/2" with the tail stand in use, and 8 1/2" with it cleared away.

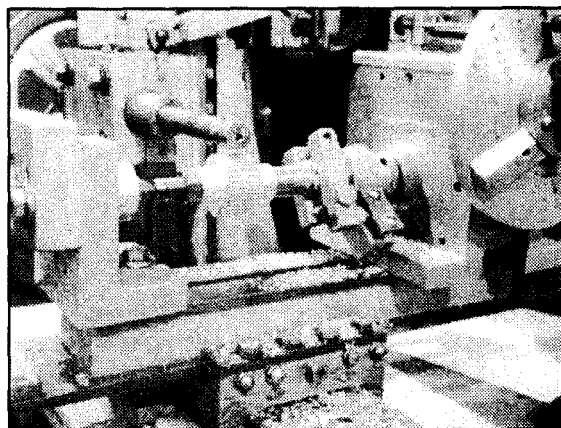
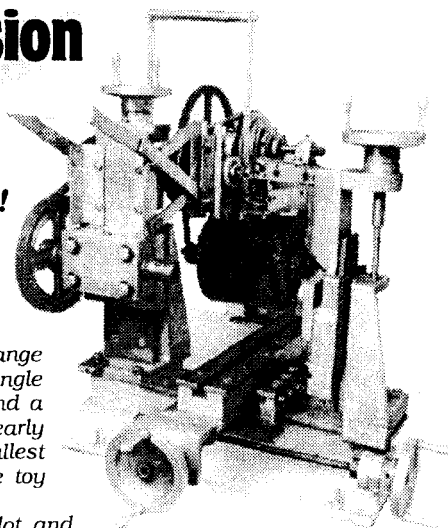
It took over a month to design the transmission, and it works beautifully! Eight speeds ranging from 43 rpm to over 2430 rpm. I know of no other small miller except the Dore-Westbury that has such a range. . . The highest speed in the low range is 270 rpm, and it made a .035" cut in the end of the compound with the face mill set at a 3" diameter at that speed with no squawk or chatter.

I made the cutter on the lathe, but the miller is designed to make its own cutters for nearly every purpose. This cutter adjusts from 2 1/2" to 4 1/2". It's an aluminum casting, and it was cast with a steel core to leave the slot for the cutter bit. It shows no sign of failure after planing off the end of the compound. The set screws didn't loosen, and the casting wasn't strained in the least amount. That's after several passes over a sandwich of 1/4" steel top and bottom, and an inch of aluminum between.

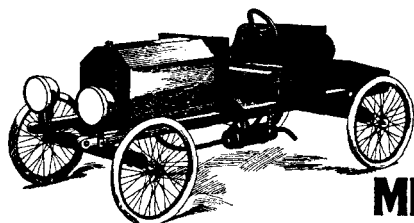
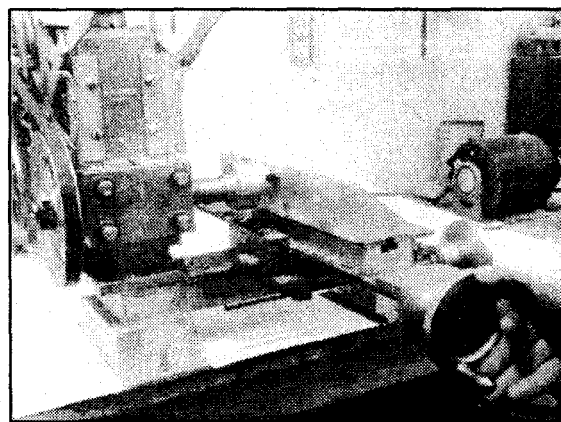
Anything is possible. It can make jigs or fixtures that are needed for any kind of work. It can make any type of style of cutter. You could even machine a blank or a Brown & Sharpe gear cutter, mill the lands, and grind the cutter right on the miller.

I'm really excited about this machine. It's much more than I thought possible when I began."

Build yourself a milling machine! Order a copy of this. It's worth twice the price. 5 1/2 x 8 1/2 softcover 160 pages
No. 1128



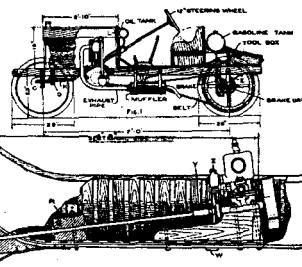
(above) cutting a gear using indexing head described in Deluxe Accessories book (below left) facing an angle plate with a fly cutter



To Simplify This Small but Serviceable Motor Car for Construction by the Young Mechanic, Only the Essential Parts are Considered. Other Useful and Ornamental Features may be Added as the Skill and Means of the Builder Make Possible

Coming in
Late 1996

**BOY
MECHANIC
VOL 3**



\$9.95

Machining & Metalworking Handbook!

MCGRAW-HILL MACHINING AND METALWORKING HANDBOOK

by Donald A. Walsh

From the backcover:

"This authoritative handbook answers a long-standing need

Over 1500 pages!

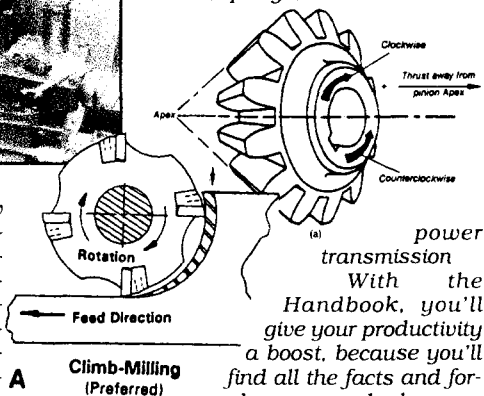


for a completely new reference tool for machinists, tool designers, product designers, machine operators, and manufacturing managers. Developed by McGraw-Hill, the leading publisher of engineering information, it offers the very latest on-the-job know-how in the fields of machining and metalworking.

From safety procedures and current ANSI standards to the newest metal-cutting practices, cutting tools, and polishing compounds, the Handbook covers metalworking technology in thorough detail. It's the one-volume reference that will help you solve practical metalworking problems quickly and effectively.

With 23 logically organized sections and over 900 illustrations, 120 photographs, and 480 tables, the Handbook is an efficient on-the-job resource. Essential information is right at your fingers, including: • Formulas for calculating machining times and using high-speed manufacturing

methods, tools, and materials • Feeds and speeds tables for milling, turning, drilling, boring, and reaming • Sheet metal practices and layout, including design procedures • How to apply fastening and joining techniques with dimensions of standard fastening devices • Extensive information on electroplating • Extensive design data, including information on engineering materials and design practices for gearing, cams, springs, mechanisms, and



need them in one authoritative source."

Obviously, that's a pretty hard sell, and this is an expensive book. But it does deliver.

Who makes Pocan plastic, and what's its family name? What are the dimensions for a 1" bore clamp collar? What are the factors affecting springback when stamping sheet metal? How do you calculate conical compression springs? You get answers to these and thousands of other problems in this hefty encyclopedia. If it has anything to do with metalworking, you'll find it here.

Stiff price, but you get your money's worth. Consider it. 5 x 8 1/2 hardcover 1518 pages (2" thick and weights 3 lbs+) Cat. no. 1343 \$69.50

CHAPTERS

• modern metalworking machinery, tools, and measuring devices • mathematics for machinists and metalworkers • modern calculator techniques for designers, machinists, and metalworkers • US Customary and Metric measures and conversions • materials: physical and chemical properties, characteristics, and uses • fastening and joining techniques and hardware • machining, machine tools, and practices • American National Standards applicable to machinery, machining and metalworking practices • tool-

ing, die making, molds, jigs, and fixtures • gears • antifriction bearings • cams and cam development, layout and design • power transmission systems • mechanisms and linkages • sheet metal practices and layout • hardening and tempering steels • castings, moldings extrusions and powder-metal technology • plating practices and finishes for metals • engineering data • safety practices in industry • societies, associations, institutes, and specification authorities

THE GINGERY BANDSAW!

Professional quality bandsaw!

Designing and Building a Horizontal/Vertical METAL CUTTING BANDSAW

by Vincent Gingery

introduction by Dave Gingery

Disgusted with a cheap \$200 import bandsaw, the Gingery's scoured the countryside for parts and ideas and ended up with this powerful, yet portable bandsaw. These two refugee-munchkins from the Land of Gingery wanted to test it by sawing the aircraft carrier Kennedy in half, but the Navy wouldn't let them. (I think they could do it...)

The actual saw table is 36" long and 9" wide. Most of the saw is bolted together from standard angle iron and strap, but there are a few welds. A 1/2 hp 1750 rpm motor powers the saw through a series of belts to achieve a blade speed of 159 feet minute which is right on target for cutting mild steel. Rate of descent is controlled through a mechanism build around a garage door spring. This of professional quality and performance with ball bearing blade guides and all the rest. You may want to design and build a coolant pump and catch pan.

You need at least a nine inch lathe. The drive and idler wheels were fabricated from 8" diameter 3/8" thick steel pipe. They had a devil of time chucking sections in the lathe in order to turn them, but they pulled it off. The wheels drive a 14 teeth per inch raker of 94" length.

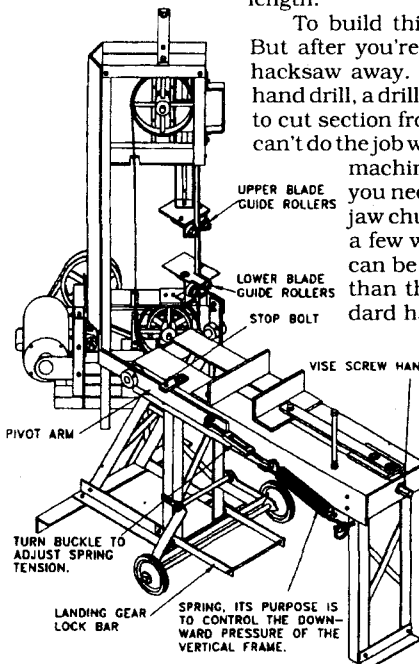
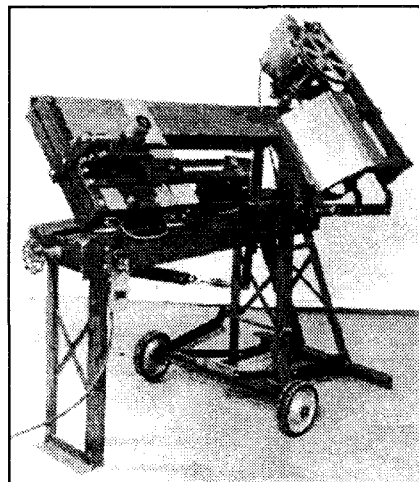
To build this, you'll need a hacksaw. But after you're done, you can throw the hacksaw away. You'll also need a electric hand drill, a drill press, and a torch is handy to cut section from the 8" pipe if your lathe can't do the job with a cutoff tool. Most of the machining is quite simple, but you need at least a 9" lathe, a 6" 3-jaw chuck, and a 6" four jaw. Only a few welds are needed, and they can be done with 75 amps. Other than that, all you need are standard hand tools.

This is a great book. You get the usual Gingery total how-to quality. What has improved since the first charcoal foundry books is the use of computers. This latest book is beautifully typeset. The illustrations are nicely done with a CAD-CAM program, and the top-notch content is as great as ever.

Get a copy of this. Build it, modify it, or just

dream about it. If nothing else, get a copy of this to make your Gingery library complete. You can use the saw to cut steel for your favorite project or slice those rock-hard pork chops that you left on the grill too long. Top rate! After all, it's a Gingery book. Get a copy. 5 1/2 x 8 1/2 x 11 softcover 167 pages No. 1381

\$12.95



POWER & MACHINERY

POWER AND MACHINERY EMPLOYED IN MANUFACTURES

by U.S. Dept Interior, Census Office
reprinted by Lindsay Publications Inc

Although our tenth census was held in 1880, it wasn't until 1888 that this wall-to-wall picture book of incredible wood engravings finally came of the press. Over ten years ago, we reprinted a small section of this volume and entitled it "The Machine Tools of 1885". If you have seen that book or know of it, you know what this is all about.

The general table of contents includes General Letter of Transmittal; Statistics of Steam and Water Power Used in the Manufacturing of Iron and Steel; Machine Tools and Wood-Working Machinery; Wool and Silk Machinery; Pumps and Pumping Engines; Manufacture of Engines and Boilers; Marine Engines and Steam Vessels; and Report on the Ice Industry of the United States.

The first chapter on power for iron and steel has no illustrations. But the next section on machine tools and wood-working machines has 570 engravings covering everything from a sash and door groover head and molding machines to 10 foot plate bender and 84 inch lathe. It's like walking through the most modern metal and/or woodworking shop of the 1880's.

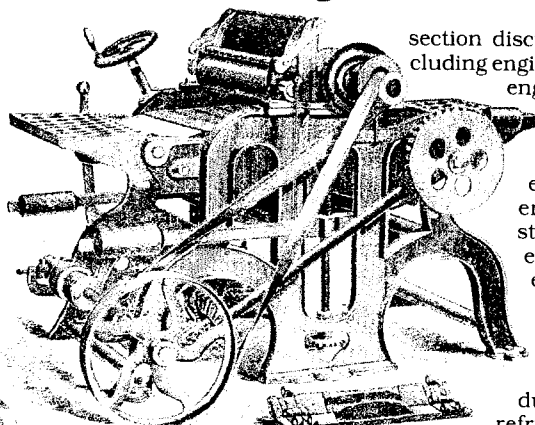
You get page after page of fascinating pumps, many of which look like the one-lung engines that would follow in just a few years. Ten pages of incredible fire engines follow.

You'll find about thirty great engravings revealing the silk and wool industry. You can explore carding machines, a forty-harness loom, a Davis & Furber wet gig, and much more.

The report on the manufacture of engines and boilers talks about 1880 state-of-the-art and throws 32 engravings at you to prove its points. You'll see traveling cranes, a pneumatic riveter, Colt's armory engines, an Atlas slide-valve engine, a Corliss engine with a wrought iron frame, a Ball engine, and on and on.

Next, the steam boat

Incredible Picture Book from the 1880's!



section discusses all kinds of things including engines of New England steamers, engines and boilers of the "City of Augusta", flue-boilers, boilers of Gulf steamers, side-wheel steamers, compound engines of an ocean steamer, engines of Mississippi river steamers, and more. Thirty-eight engravings will show you the engines of the "Louisiana", "Hudson", "Susquehanna", "City of San Francisco" and more.

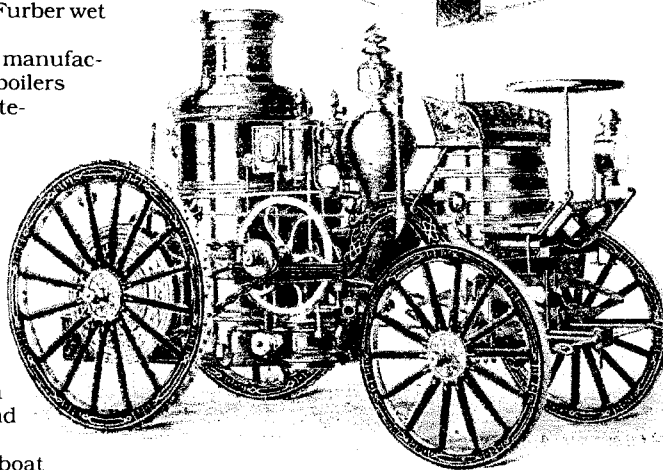
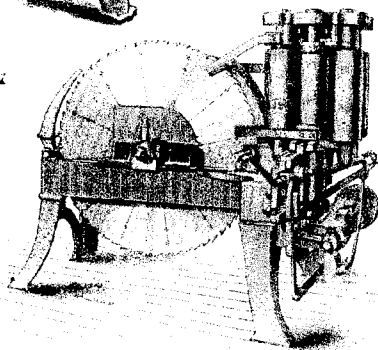
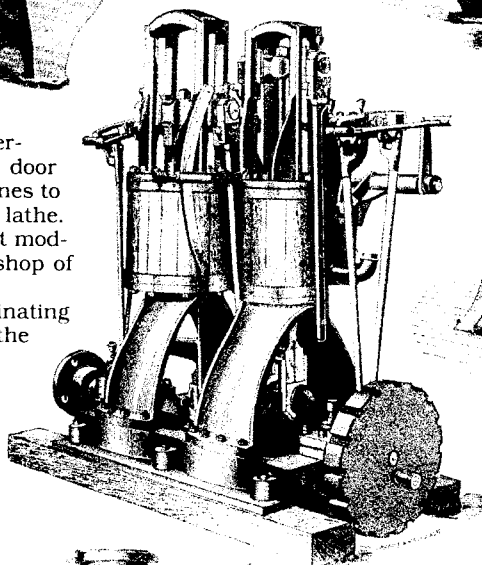
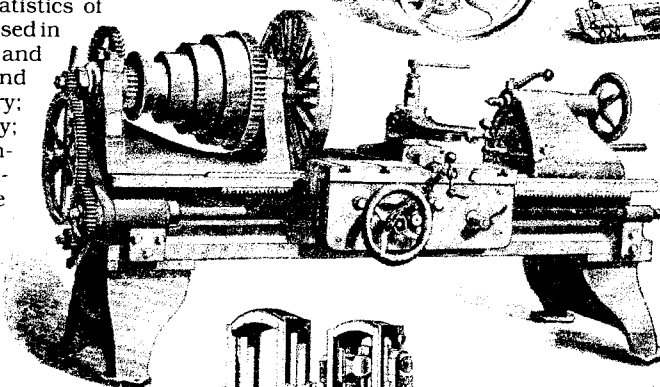
Finally, explore the ice industry back when mechanical refrigeration was being introduced. You get great engravings

showing the tools and techniques of cutting winter ice and storing it for summer use in insulated ice houses. You get page after page of statistics on the number of tons of ice sold, the number and tonnage of steam boats operating in a given state, the number of machine shops building steam engines and more.

Seeing all these engravings together in one giant volume provides a sweeping picture of American industry more than a century ago.

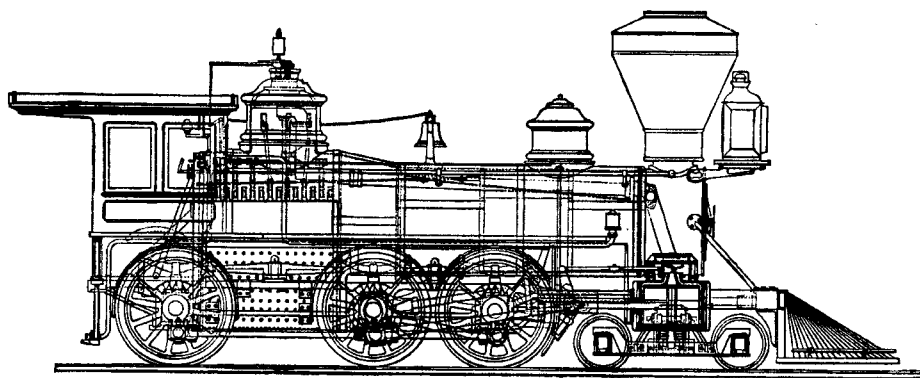
Great book. I've had it for years. I'm just now getting around to printing the whole thing. This is a must-have for the antique machinery nut, historian, restorer, collector and builder. The price is high (at least for Lindsay books), but it is really quite a bargain. Other publishers would ask a lot more. It doesn't get any better than this. Or-

der a copy. 8 1/2 x 11 hardcover with extra thick boards reinforced end-sheets about 672 pages
No. 21532 \$49.95



Hundreds of Incredible Engravings

- Machine Tools
- Woodworking Machines
- Steam Engines
- Fire Engines
- Ice Harvesting Tools
- Boilers
- Textile Equipment
- More!



Modern Locomotive Construction

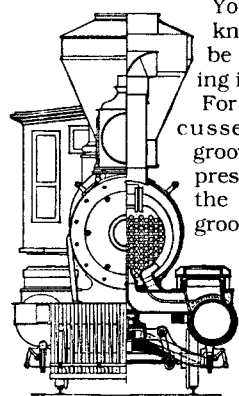
**Massive 1892 Handbook!
Over 1,000 Drawings!**

MODERN LOCOMOTIVE CONSTRUCTION

by J G A Meyer

Build yourself a locomotive! Meyer was an associate editor of *American Machinist* magazine, a member of the ASME, and chief draftsman for the Grant Locomotive Works. If any one could take you by the hand and show you how to design an 1892 locomotive from the ground up, he could.

You learn every aspect of design and construction with over a thousand illustrations, most of them being incredibly detailed working drawings.



You get detailed how-to knowledge that can only be acquired from working in the industry.

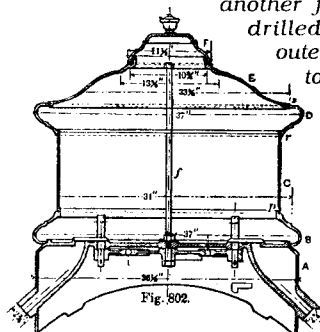
For instance, Meyer discusses milling special grooves in order to remove pressure from the back of the slide valve. Into the grooves are placed metal strips supported by springs. Meyer will tell you the master mechanics in the roundhouse disliked spiral springs because lubricating

tallow would build up there. Elliptic springs solved the problem but lost their strength over time and created other unique problems.

You get that kind of detail and insider information throughout this big volume. Who on earth needs to know about the effect of lead counterbalance in the rim? ...or that bearing pressure can be significantly greater in the knuckle-joint pin as compared to a crank-pin? ...or why a sloping crown sheet is much safer when a locomotive is running down hill? You need to know these things and a thousand more if you restore locomotives, build models, study railroad history, or just want to impress the mourners at your mother-in-law's wake.

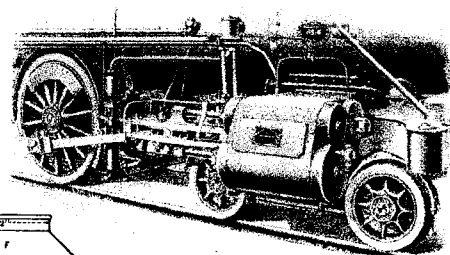
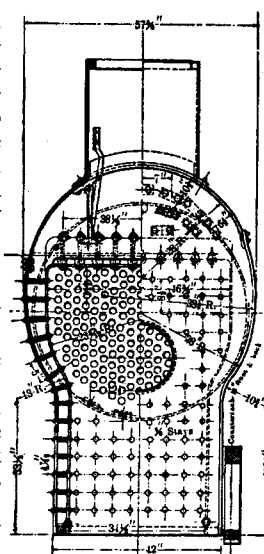
There is no way I can describe this book other than throw a few quotes at you and reproduce a few of the illustrations. The detail is mind boggling.

Lets suppose you're going to put a diamond-shaped smoke stack on your soft-coal-burning locomotive. Meyer shows you a diagram of a typical diamond stack. "...The cylindrical part D of the stack often consists of two shells, leaving an annular space about 5/8 inch wide between them. Sometimes four 1-inch holes are drilled through the outer shell just above the flange A, and another four holes are drilled through the outer shell near the top, for the purpose of creating a circulation of air through the annular space. This arrangement prevents the outer shell from becoming overheated and blistering



the paint..." and on and on he goes. Blister the paint? I would be very proud to build an engine that would run well whether it were painted or not.

Meyer obviously was an expert. He knew what he was talking about. And he shares his expertise with us in this incredible volume. I took one look at this and knew it had to be reprinted for machinery and steam power fanatics. Reprinting this has been very expensive, hence the high price. But you get your money's worth and more.



This is something very special for connoisseurs and collectors - a must-have. For the rest of us, it is a visual joy, an exploration of machinery from the glorious age of steam power. Full tilt! Get a copy of this. Put a second mortgage on your house if you have to. Seriously, if the price is too steep for you, consider putting it on your charge card and paying it off in installments. But do get a copy. You'll like this. 8 1/2 x 11 hardcover 685 pages

No. 21443

\$44.95

Author's Goal

"The series of articles treating on Modern Locomotive Construction recently published in the *American Machinist*, which, by the request of its editor, I commenced while I was engaged as chief draftsman at the Grant Locomotive Works, Paterson, N.J....

The favorable recognition which these papers have received induced me to revise them thoroughly and add more than fifty per cent of new matter, with the necessary illustrations, which also had to be made expressly for the purpose, and to publish the whole in book form.

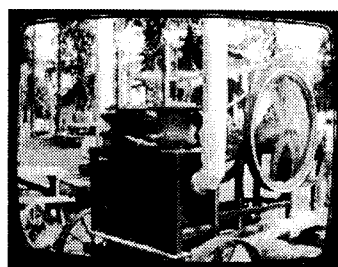
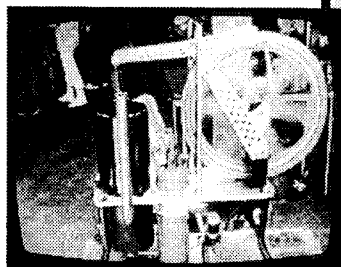
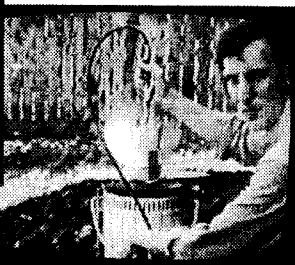
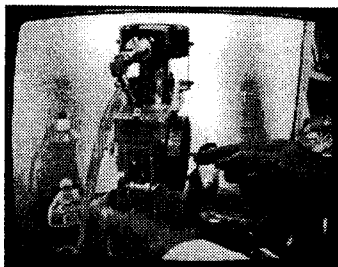
...The aim is to assist practical men ... who are about to enter the business of locomotive building..."

CONTENTS

- Classification of Locomotives - Trains Resistance - Tractive Power - Weights of Engines
- Construction of Cylinders - Steam Pipes - Slide Valves • Valve Gear - Construction of Links - Pistons - Crossheads - Slides - Stuffing Boxes • Frames and Pedestals
- Axle Boxes • Driving Axles - Driving Wheels - Counterbalance • Main-Rods - Side Rods - Crank-Pins • Throttle Pipes - Throttle Valve Gear - Safety Valves - Whistle - Pumps - Check Valves • Spring Axles - Driving Springs • Boilers - Grate Surface - Heating Surface - Riveted Joints - Extension Fronts • Ash-Pans - Smoke-Stacks - Exhaust-Pipes • Sand-Boxes - Bells - Pilots - Engine Braces • Engine Trucks • Oil-cups - Valves - Cocks - Injector • Tenders - Tender Trucks • Useful Rules, Formulas, and Data • Compound Locomotives.

Bob Bailey's Introduction to Hot Air Engines

Wall-to-wall color video of rare, running hot air engines!



AN INTRODUCTION TO HOT AIR ENGINES

by Bob Bailey

Ooh! Ahh! Wow! Some guys chase beautiful women. Forget it. One look at this tape, and you'll be chasing beautiful engines. What a video!

This is a visual tour featuring one hot air engine after another. And almost every one is running full tilt. Bob starts out showing a model test tube engine and explaining the hot air cycle. But you can get that stuff in a book. After that, though, the good stuff starts. AND IS IT GOOD!

First Bob shows you old engines like Stirling fan engines, Rider engines, Ericsson pumping engines, Bremen Silent engines (only 16 known to exist), a very rare 1902 Slocum, and many more. It's one engine after another - on and on and on.

Just about the time you think the tape is over, Bailey takes you to Andy Ross's shop to see his 20cc gamma engine, a model airplane engine and a 90cc Stirling engine with magnetic coupling. These engines (some patented) can be seen in his book. But you MUST see them run. They are simply amazing. And you have to see the engine parts lying around Andy's shop. Talk about an engine fanatic! Amazing!

Visit with Ron Steele. He'll fire up a four cylinder engine and run it at 800 rpm at 800° F. Then he jacks up the temperature to 2000° F with a torch. That gives about 1500 rpm. When he pressurizes the engine with 20 psi, you have got to see what happens! He even takes the engine apart to show you what's inside. He's working on 375 and 1000 watt versions right now.

Visit with Stirling guru Dr Jim Senft in Wisconsin and watch his incredible engine that runs on the heat of a human hand. See Alphonse Vassallo's solar engine running and taken apart. See his reversible marine engine. And an new engine of unusual design. See prototype engines being developed by Donald Isaac Jr of Tamin Enterprises. And more.

Bailey will take you to the big engine meets at Wyandotte MI and Lake Itasca MN

to see incredible hot air engines, some restored, some models, and others of unique design. See a running liquid piston engine built by Neal James. See Ken McCabe's engine built from an auto air conditioning compressor. See some fantastic engines built by Ole Berge. And on and on it goes.

I'm sure this all sounds like a lot of hype. Too bad. I like to chase women, but no more. After watching this tape, it's engines for me from here on out. Bob's been getting rave reviews from those who have seen the tape. And it's no wonder.

You'll have to check out the Roper Caloric engine, the

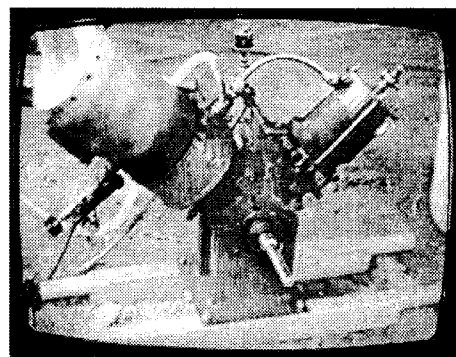
His Best Video Yet!

Hush Power airplane engine under development, the Pakistani fan being sold, and much more by watching the tape.

It took almost a year and a half for Bob Bailey to collect his footage, and it shows. If you like engines, get this. If you want to feel like a raw beginner (no matter how skilled a machinist you are), get this. If you think hot air engines are wimpy, GET THIS!

Great stuff. About 80 minutes of wall-to-wall engines. VHS, NTSC format only. About the only thing I can think of to top this would be a Bailey documentary on the pranks and practical jokes of Dave Gingery. But that might get him arrested....

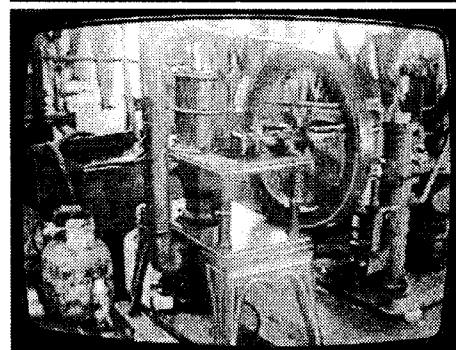
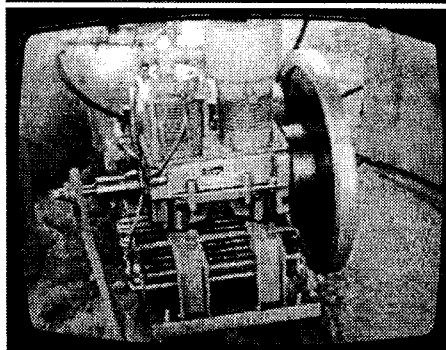
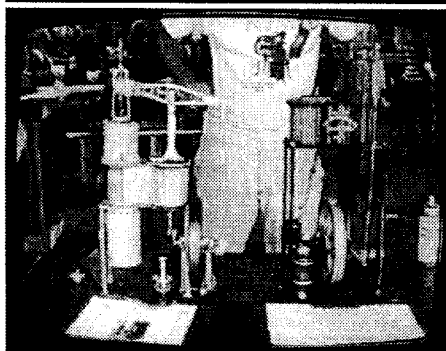
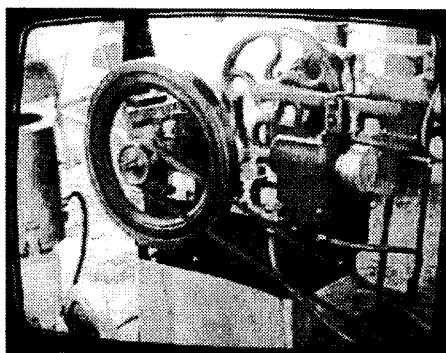
Top rate. If you're an engine freak. Get a copy. You won't be disappointed. Excellent! No. 1396 \$33.95



IMPRESSIVE!

This (one of many) unsolicited testimonial is from Mark Palmer in Kansas-

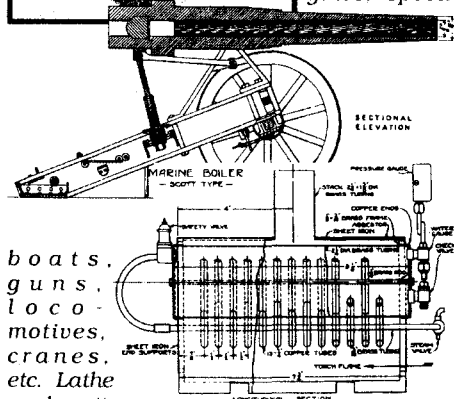
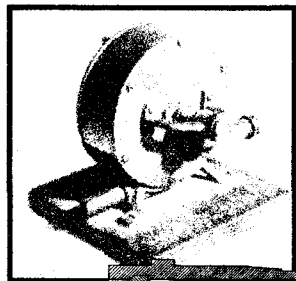
"From the gentle and elegant giants of the nineteenth century to some modern day screamers. From junkyard wizardry to Swiss watch precision. The clever, the brilliant and the bizarre. Mr. Bailey's 'Introduction to Hot Air Engines' is comprehensive, informative, fascinating and inspirational."



**Over 400 Pages of Great
Ideas! Fun Book!**

by Raymond F Yates
reprinted by Lindsay Publications

on the various processes and operation involved in modelmaking and the actual construction of numerous models, including steam engines, speed-



work, pattern
work, electroplating, soft and hard soldering,
grinding, drilling, etc., are also included."

Sounds like a great book doesn't it? Actually the claims are a little inflated because the author tries to cover too much. Each topic could be a book in itself. Still, it is fascinating, and guaranteed to fill your head with ideas.

Chapters include: workshop, lathe work, drilling, soldering, hardening and tempering steel, abrasives, patternmaking, electroplating, model slide crank steam engine, model twin-cylinder engine, single-cylinder engines, model twin-cylinder marine engine, flash steam plants, flash steam plant for model airplanes, model steam turbine, model boilers, boiler fittings, model hydroplane, lake freighter, gasoline engine, model steam locomotive tank, siege gun, steam yacht, 34" monoplane and much more!

Some of these projects need castings which are not available. But with all the dimensions and photos given, you should be able to modify and improve the designs. This is great raw material for the model builder.

So if you have a small lathe and want to build something in the worst way, or you just collect plans, or you just want a great book for a rainy afternoon, grab this gem from 1925. Loaded with great illustrations and great ideas. Don't pass it up. Order a copy today! 5 1/2 x 8 1/2 paperback 430 pages
No. 4325 \$14.95

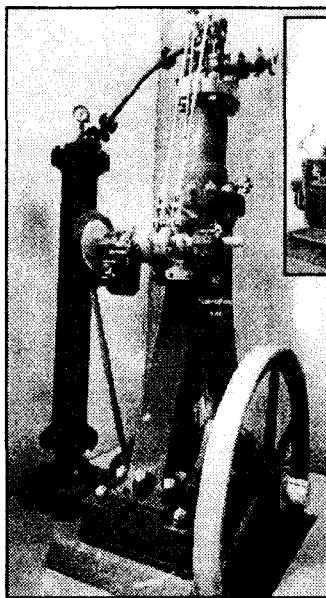
\$14.95

Fascinating Illustrated History

Some guys rob a bank (you almost have to) and go out and buy a brand new 18 wheeler. But because they demand the best, they have the stock engine ripped out, and a Cummins diesel bolted in. Many fanatics will tell you that Cummins is to diesels what Porsche is sports cars.

This is a book about diesels written by a Cummins. Not only is Lyle a member of the engine dynasty, he's also a mechanical engineer (holding a number of engine patents) and engine expert in his own right. And this is one great book.

"Diesel's S Engine is the readable and comprehensive history of the man and the engine. It traces the life of an obsessed engineer and his contemporaries who brought the world's most efficient heat machine to the marketplace. Rudolf Diesel's ideas were often ahead of their time, and his engine endured failures and setbacks until new technologies were found. Only interim, imaginative solutions overcame the frustrating problems encountered



What Rudolf invented, as perceived by his peer defenders and detractors in technical forums and courts of law, is viewed with an advantage of historical hindsight.

His engine created an international industry through the struggles of risk-taking licensees who turned it into a reliable, land-based powerplant. It soon went to sea as propulsion for commerce and underwater weapons of destruction.

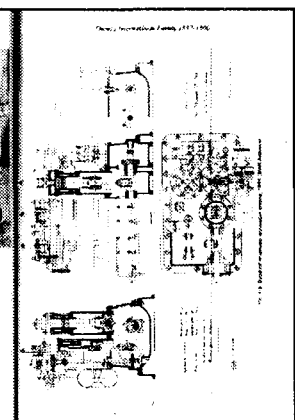
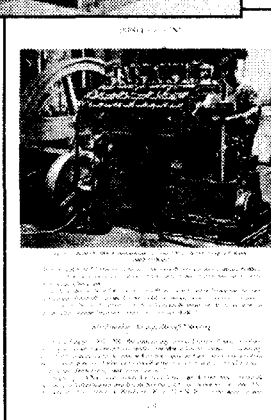
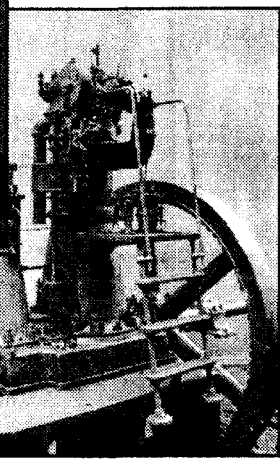
These dedicated licensed companies, with their strengths and frailties and the gradually maturing products they built are related with an understanding and empathy by one who both knew of and faced similar experiences at a later time.

Above all, Diesel's Engine is about a troubled man who devoted his life to a dream.

yet at his zenith of fame lost control over its fate."

This is very readable, loaded with mechanical drawings, photos of people and especially of all types of diesel engines in factories, ships, locomotives, and those nasty WWI German submarines. You get nitty-gritty detail about cylinders, displacements, bhp, numbers built and all that with much info coming from German archives. This history ends in 1918.

Some people think diesels are efficient because of their compression ratio. Not necessarily so. Some people think they're slow. Wrong. In fact in 1952 a modified



Cummins truck engine was kicking butt in the Indy 500 until an air intake screen clogged. And that wasn't the only time Cummins engines were used in the race.

Expensive book! But really underpriced once you see the material Lyle Cummins drops in your lap. It's big - almost 3" thick, and that makes it a pain for us to pack it and ship it to you. I don't like to work, so don't order it unless you really want it. But then I think you'd be a damned fool not to want it. Especially if you're an engine nut. (Guess that means I'll have to work...) Great book. Get one. 7 x 10 1/2 hardcover 746 pages
No. 1398 \$55.00

Build Dave Gingery's TWO CYLINDER STIRLING ENGINE

BUILD A TWO CYLINDER STIRLING CYCLE ENGINE

by Dave Gingery

Dave Gingery's letters tell most of the story:

"Here are a couple of sketches of the new hot-air engine project... I've built a single cylinder engine of a similar design and it runs great. Practically no sound or vibration at about 1200 rpm... It is a great training project that should be appropriate for second and third year shop students..."

This is a free-style design with no practical application except as a demonstration engine. However, it is not a toy engine, and the builder will gain some valuable additions to his tooling as well as acquire new skills...

do the work. You will greatly expand your skill and you will end up with a mechanical marvel..."

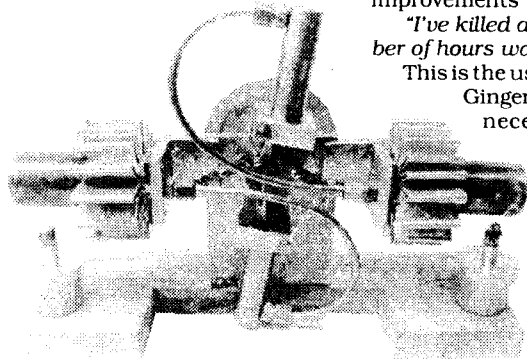
Dave stopped by one time and fired up his prototype engine. From the outside ends of the opposing cylinders the engine is 11 1/2" long. When he fired up the alcohol burners, the engine sat there on my desk and silently started spinning. It was really something to see.

This is an external combustion engine but it does not use steam to carry the heat energy into the cylinders. Instead, it uses hot air. The engine was perfected by Rev. Robert Stirling in the early 1800's. John Ericsson, the Swedish-born engineer contributed substantial improvements to the engine.

"I've killed a disgusting number of hours watching it run."

This is the usual full-tilt Dave Gingery manual with all necessary illustrations and step-by-step how-to that has made his name a famous one among machine shop enthusiasts. (Engines have

been built without using castings.) You get history, theory, drawings, photos, the whole thing. Another Gingery book! A "must have!" Order a copy today! 8 1/2 x 11 softcover 76 pages No. 1302 \$10.95



Aluminum castings are a major portion and the remainder is made of common water pipe, drill rod, brass rod and ordinary hardware, fittings and sheet metal. A small lathe fitted with faceplate, chucks and ordinary tooling will

CASTINGS for Gingery's Two- Cylinder Stirling Engine

I have a letter and computer generated photo here from a foundryman offering aluminum castings to build the Stirling engine. I count seventeen castings plus stock for pistons and heads for a package price of \$70.00. I haven't seen the parts and can-

Engine Castings

not vouch for quality or speed of delivery. But if you're thinking about building the engine, you might write HIM (not me) and request current information.

Bernard Schultz
574 Joffre Cherry Valled Rd
Burgettstown PA 15021

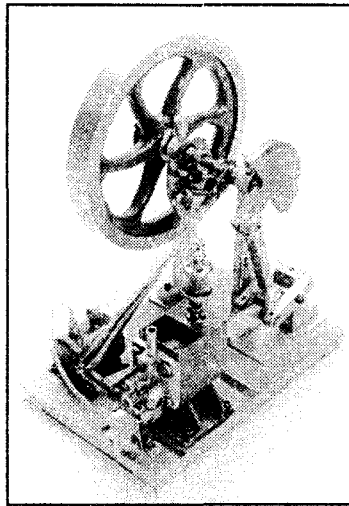
Gingery's Atkinson Engine Book Nearing Completion

The new Gingery book on the Atkinson engine won't be ready until summer. Vince wrote me not long ago.

"Although our engine operates using the same principles as the original Atkinson 'Cycle' engine, it is quite a bit different in appearance. The original engine used a hot tube igniter for combustion and a spring loaded flyball governor to control the fuel valve. Ours has been modernized to use spark ignition for combustion and a carburetor to supply fuel to the cylinder. It's a fun engine to build and it doesn't just sit on the shelf and gather dust, it really runs. And the biggest benefit of all is that it's a Gingery project and that means it's a can-do project."

Vince tells me that unlike some Atkinson models this machine is quite easy to time and get running. I've seen the prototype running on my kitchen counter (of all places!) next to my vat of fermenting beer. And I can attest that "it shurr doo run..."

An expert foundryman in Missouri is gearing up to provide castings for those builders who don't want to pour their own. So far the book looks like 8 1/2 x 11 and about a 100 pages. It will be another quality book when it finally arrives, I'm sure. Be watching for it.



KEEP YOUR LATHE IN TRIM

by South Bend Lathe Works

reprinted by Lindsay Publications

The Technical Service Department of South Bend Lathe Works published this, the fourth (and I think the most useful) of four booklets on caring for a lathe in 1943. The copyrights have now expired, so we reprinted it. I have no idea if such a booklet is still being published.

You'll learn how to "make all necessary adjustments, check power supply, protect lathe from abuse, and keep lathe in best operating condition."

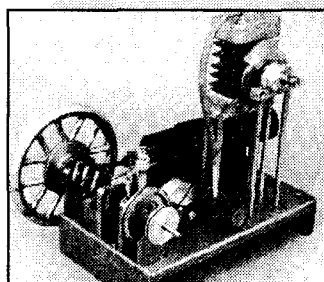
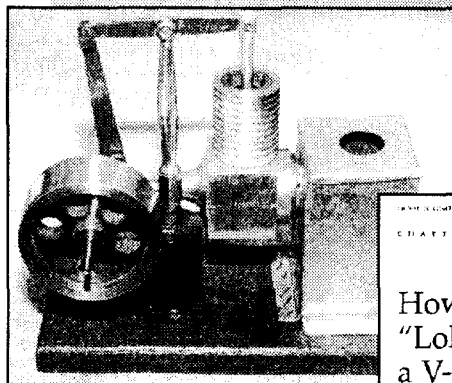
Keep Your Lathe In Trim!

Although more than fifty years old, you'll find not all that much has changed. Some lathes use a flat belt drive from the electric motor. As a result you'll learn how to splice belts and adjust the drive. You'll see how to test a small spindle bearing for clearance and how to adjust the bearing. And you get tips on the saddle gibs, the graduated collars, the tailstock top set-over, and more.

This certainly won't tell you how to rebuild a lathe, but it WILL show you how to do the routine adjustments necessary to keep a lathe operating like new. Great little booklet. Worth having, as a collectible if nothing else! Get one. 5 1/2 x 8 1/2 softcover 28 pages No. 21389 \$3.95



STIRLING ENGINE MANUAL!



CHAPTER SIXTEEN
How to construct
"Mariner",
a twin cylinder
Stirling engine.

CHAPTER THIRTY-ONE
How to construct
"Lolly",
a V-type engine.

THE STIRLING ENGINE MANUAL by James G. Rizzo

Wow! No other way to say it. Just plain, wow!
During my last visit to Camden Miniature Steam near Bath, England, I saw Andy and Adam working on this book. It looked really good then. But when I finally saw the final product, it far surpassed my expectations. If you have any interest in Stirling engines, and don't have this book, you deserve a rap on the knuckles (maybe with a two by four). This is good stuff.

Rizzo's book "Modelling Stirling and Hot Air Engines" appeared in England in 1985. This is a brand new, newly formatted updated version of his original title.

He says: "It is still a book for beginners to the hobby of building Stirling Engines..."

The first part of the book covers the history of the engine...

The second part... deals with projects well within the capabilities of the beginner or a home engineer with modest workshop facilities. This section covers a range of examples from small, uncomplicated but highly instructive and entertaining engines, to two types of Stirling engines not previously covered, a Low Temperature Differential Stirling Engine, and a Pressurised Stirling Engine...

[I believe] this is an engine that still has scope for further development; secondly that the home engineer has much to offer in its development... thirdly, this need not be an expensive hobby, since a fair amount of materials used can be obtained cheaply or from scrap yards..."

Many people contributed to the contents of this book including Andy Ross, James Senft, Roy Darlington, Richard White, and a number of others.

You get detailed text and great illustrations. You don't get dimensioned plans, but you do get photos, side elevation drawings, front elevations, tables of all important dimensions and specifications, and more. I've not seen more practical nuts-and-bolts hands-on how-to on Stirling engines in one place before. This beaut comes from England and because of exchange rates, prices are a bit high and can vary. But you get a beautiful hardcover book loaded with rare info. It's worth having. All I can say is Wow! 8 x 11 1/2 hardcover 183 pages wall-to-wall illustrations and four pages of color photos

No. 1375

\$32.95

Introduction to Stirling Engines

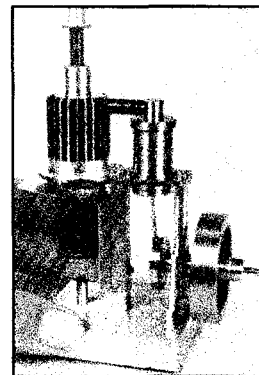
AN INTRODUCTION TO STIRLING ENGINES

by James R. Senft

The author spent years as a college professor researching the Stirling engine. He has written dozens of technical articles and a couple of technical books. He told me, "I

wrote this little volume to make the basic facts of Stirling engine understandable to anyone who can read. The book explains in clear terms exactly how the Stirling engine works." And it sure does.

You get a very simple but accurate explanation of how the engine



works, why it works, and simplified theory surrounding its operation. If you think you're going to design and build, or simply modify, a Stirling engine without knowing what's in this book, I think you're a little daffy. A little

theory goes a long,

long way toward

improving chances

for success. This

book isn't the only

book that explains

the theory. But I

think the contents

of this book are the

minimum knowl-

edge you need.

You'll learn

about heat en-

gines, heat engines

and laws of ther-

modynamics, effi-

ciency and the sec-

ond law, the displacer,

the Stirling thermo-

dynamic cycle, a complete Stirling engine,

other engine mechanisms, heat losses, the regenerator, the single-cylinder configuration, the ideal Stirling cycle, two-piston Stirling engines, pressurization, modern development, and a bibliography.

You get lots of old engravings of engines (many are to be found in Lindsay books), but you also get to see amazing new engines, the L-27 Ringbom solar engine, the P-19 Stirling engine that runs on the warmth of a human hand, engines that pump water, run automobiles, and more.

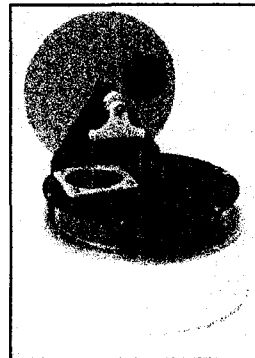
It's small, compact, loaded with ideas. Most important, this will explain how a Stirling engine works. Here's the truth from someone who knows and can explain it in an easy-to-read style. No more swiss-cheese knowledge. No more BS. No more half-truths. Here's the scoop.

Small book. Great info. Well written. Great ideas for engines, and other engine sources.

1993. Get a copy. 5 1/2 x 8 softcover 80 pages

No. 1374

\$11.95



CONTENTS

What is a Stirling Cycle engine?

How the "Closed Cycle" Hot Air Engine works

The Regenerator Heating and Cooling Pressurisation

Designing and Building model Stirling engines Workshop Practice

Starting and Running an engine

Of Models and Modelling

How to Construct "Dolly" I

How to Construct "Dolly II"

How to Construct "DOP-YU", a double acting Stirling Engine

How to Construct "Lolly", a V-type engine

How to Construct "Lolly II", a V-type engine

How to Construct "Sturdy", a twin cylinder Stirling engine

How to Construct "Mariner", a twin cylinder Stirling engine

The Ericsson Hot Air Pump engines

How to Construct "Prova II", a competition type co-axial Stirling engine

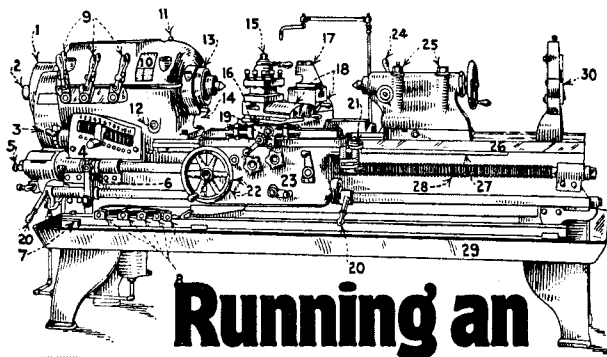
How to Construct "Sunspot", a solar-powered Stirling engine

How to Construct "Dyna", a demonstration engine

Low Temperature Differential & Ringbom Stirling engines

How to Construct "Tuba"

How to Measure engine performance



Running an ENGINE LATHE

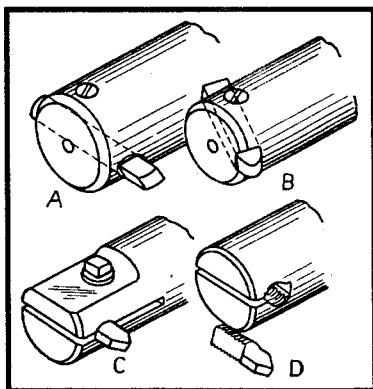
"Practical suggestions which will give the young machinist or apprentice the foundation principles of engine lathe work."

RUNNING AN ENGINE LATHE

by Fred H. Colvin

If you're just starting out using a metal cutting lathe, or you're trying to learn techniques you feel you should have known all along, then grab this. This small, but jam-packed book will show you all the basic techniques of running a lathe.

Thirteen chapters cover the engine lathe, centering lathe work, driving the work, tools and turning, steady and follower rests, faceplate work, chucks and chucking, boring tools, taper turning, cutting screwthreads, test indicators and their use, three types of centering mandrels and care of the lathe.



You'll learn all about essential operations in easy-to-read and understand text illustrated with simple, clear drawings. You'll learn about different kinds of dogs (not the barking type), split collars, toolholder and bits, work with shoulders, boring the end of a bar, home-made follower rest, saving a poor casting, bridle for faceplate work, slotted chucks for flat work, precision drilling, boring cylinders, ways of figuring tapers, rapid thread cutting, cutting a double or triple

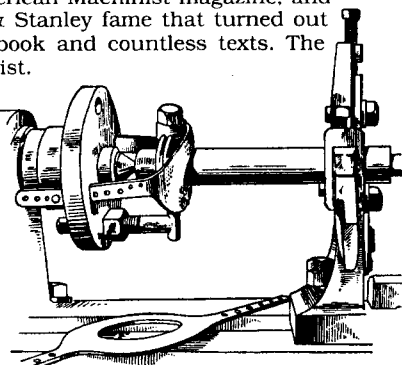
Another Colvin Classic

thread, cutting Brown & Sharpe worm threads, using dial indicators, and much, much more.

There are many tables describing tapers, V threads, square threads, ACME threads, grinding angles on many different tools, and more.

The author was an old man when he authored this in 1941. He was editor emeritus of American Machinist magazine, and was the Colvin of Colvin & Stanley fame that turned out American Machinist handbook and countless texts. The man was an expert machinist.

Here's a great little book at a great little price that you can't afford not to have, especially if you consider yourself a beginner on a lathe. Excellent book! Bargain price. 5 1/2 X 8 1/2 softcover 117 pages No. 4708 \$6.95



STEAM AND ITS USES

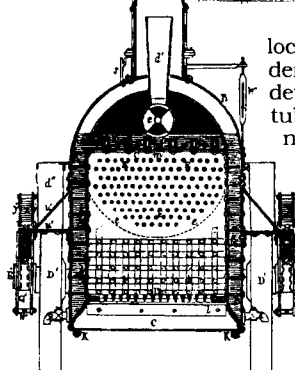
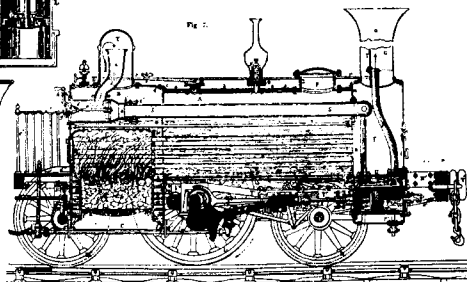
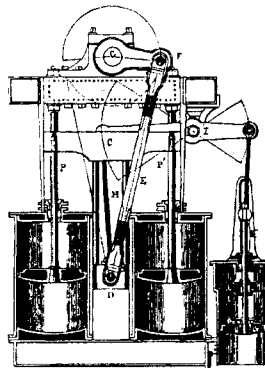
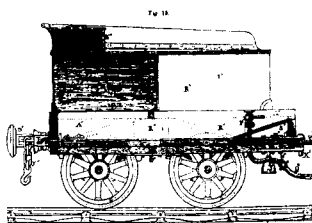
Beautiful 1858 Book Now Available!

STEAM AND ITS USES

by Dionysius Lardner
reprinted by Lindsay Publications

I have already reprinted Lardner's *Rudimentary Treatise on the Steam Engine* from 1848. Here we have a remarkable British book that explores the application of steam power in 1856. You get eighty nine engravings that take you everywhere from Handsworth Church where James Watt's Monument stands to the bowels of a steam locomotive and a steamship.

Major sections include steam, the steam engine, the locomotive, steam navigation, and locomotion by river and railway in the United States. Within the sections are chapters and sub-chapters in which Dr. Lardner discusses topics like boiler feeding apparatus, self-acting feeders, supply of steam to the cylinder, Seward's slides, effective pressure, the

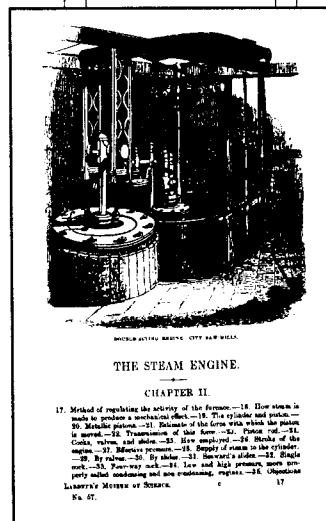


locomotive mechanism not generally understood, evaporating power of boiler determines efficacy of engine, fire-box, tubes through boiler, progress of steam navigation from 1812 to 1837, propellers, paddle-wheels and screws, and dozens of other illustrated technical topics.

You'll see the double-acting engine at the zinc works in City Road, London. You'll see elaborate cut-aways and drawings of the early locomotives that look remarkably quaint today. You'll see an early Northwestern Railroad train on the viaduct near Watford, London. You'll examine the tender of such a train. You'll see marine steam engines in detail. You'll even see a Hudson River steamer and a Mississippi steam boat.

This is a beautifully illustrated volume that I knew must be reprinted as soon as I saw it. It takes you back to the days when steam was brand new. It's a great little historical book that will appeal to historians, steam buffs, railroaders, and modelmakers (and, yes, to book freaks of all varieties.) Just take a look at some of the illustrations reproduced here. You'll see what I mean. Get a copy. I think it's really a gem. I think you'll like it, too. 5x7 hardcover 224 pages No. 21664

\$19.95



THE STEAM ENGINE.
CHAPTER II.
17. Method of regulating the activity of the furnace.—18. How steam is made to produce a mechanical effect.—19. The cylinder and piston.—20. Methods of passing steam.—21. Details of the form with which the piston is worked.—22. Transmission of motion from the piston to the crank.—23. Crank, valve, and slide.—24. How supplied.—25. Method of the motion.—26. Difference between the two.—27. Supply of steam to the cylinder.—28. By valve.—29. By slide.—30. Seward's slide.—31. Single and double.—32. Tendency to leak.—33. Loss and high pressure, open property called condensing and non-condensing, engine.—34. Compound Lardner's system of steam.

Laying Out for Boiler Makers!

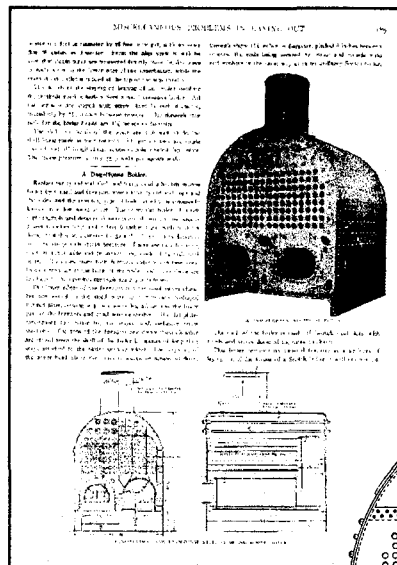
Absolutely incredible book on boilers and complex sheet metal work!

LAYING OUT FOR BOILER MAKERS AND SHEET METAL WORKERS

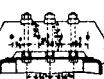
by Aldrich Publishing Company
reprinted by Lindsay Publications

The ladies who handle your orders thought this was a book about getting a sun tan. Wrong! Not unless you like to lay around in a bikini in a boilermaking shop!

In a sense this is a 1918 book about taking a flat sheet of metal, drawing all kinds of fancy triangles on it, putting it in a brake and turning it into a three dimensional object. What's unusual here is that the sheet metal is boiler plate and the objects you end up with are steam boilers!



This is an incredible book. If you like to work sheet metal, this will show you the geometry you need to layout and fabricate some of the most unusual ta-

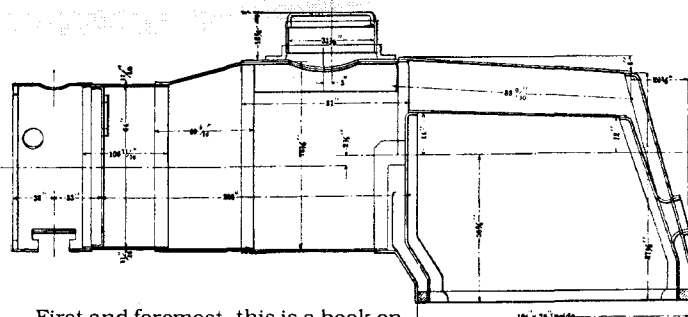


pered, gooseneck adapters and unusual curved forms you'll ever see. This is an incredible layout book that goes well beyond the usual simple sheet exercises. After all, we're building boilers here, and they have to be strong and safe.

If you are interested in building boilers, you've got a winner here. Chapters include the subject of laying out, triangulation, how to lay out a tubular boiler, how to lay out a locomotive boiler, how to layout a Scotch boiler, repairing locomotive and other types of boilers, the layout and construction of steel stacks, and miscellaneous problems.

This is wall-to-wall drawings. If you found Meyer's "Locomotive Construction" interesting, I can assure you that this is almost identical. The headings under each chapter are unlike anything else I can recall seeing: holding quantities of flues, smokebox liner, firebox crown sheet, circumferential seams, backing out rivets and repairing cracked mudring, nest coil semi-flash boilers, a flue and return tubular boiler with drop leg furnaces, a lobster back boiler, layout of an arched smoke box, development of ogee corner, and on and on.

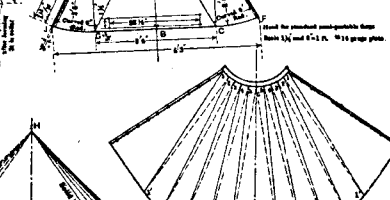
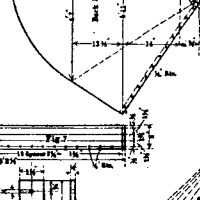
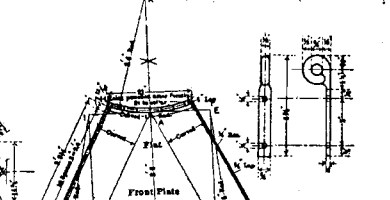
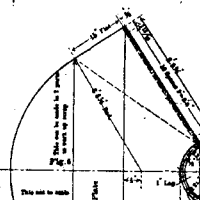
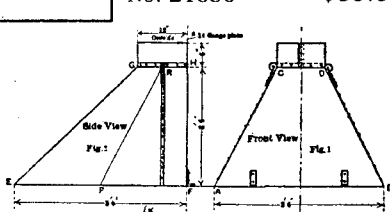
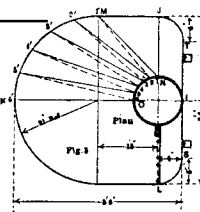
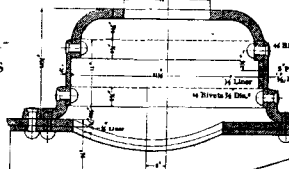
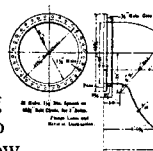
The last chapter on "miscellaneous problems" makes up more than half the book! There are boilers that look like brew kettles. One boiler isn't a boiler at all. It's a complex intake elbow for an 18,000 hp water turbine! One pattern will you how to make a pouring lip for a foundry ladle.



First and foremost, this is a book on taking flat sheets of metal and converting them into three dimensional shapes. This is by far the best book I have ever seen on the topic. No HVAC ducts here... just unusual stuff. If you want to work sheet metal, this is a must have.

What also knocked my socks off is that you get details on building boilers! In particular, locomotive boilers. It almost makes me want to run out in the warehouse and start fabricating a giant locomotive boiler! Well, maybe not... You get detailed plans with all the flues, rivets, and bolts shown. You get formulas to calculate unknowns and ensure success. It's great.

This is a "must-have" for sheet metal workers, steam engine builders, and steam power and technology historians. It's all nuts-and-bolts, practical how-to, 100% illustrated. I've never seen a better one than this. (If you miss out on this, I'm going to have to ask you to have your cranium hydrotested!) Somewhat expensive, but you won't be disappointed. Get one! 8 1/2 x 11 cloth 416 pages
No. 21630 \$39.95



LAYOUT OF A CONICAL HOOD FOR A SEMI-PORTABLE FORCE.

Pressworking of Metals!

PRESSWORKING OF METALS

by C. W. Hinman

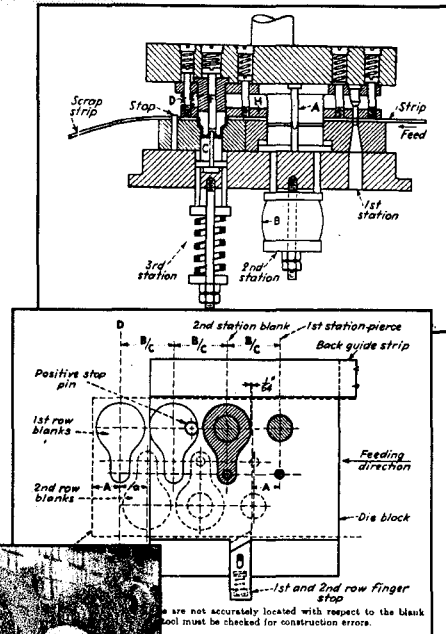
reprinted by Lindsay Publications

"A reference book illustrating and describing practical applications of the principles used in the design of punches and dies."

If you intend to mass produce something even on small scale, you can consider making castings and machining them with a turret lathe or if you want to get fancy, maybe even a automatic screw machine of some type. But industry found long ago that they could make more parts, faster using less metal if they just stamped parts out of sheet metal, whether it be the soda can in your hand or the fender on your car. It's all done with the equipment described in this book.

Chapters include: introduction; types of presses and their selection; stamping and forming mild steels; stamping and forming nonferrous metals; specifications for ordering sheet materials; pressworking nonmetallic materials; press accessories and attachments; chutes, magazines, hoppers, roll reeds and dials; preliminary steps in die engineering; automatic stops; blanking and cutting dies; two-step die operation; progressive dies; developing the blank and scrap strip; shaving, burnishing, broaching, and trimming; section dies and inserts; bending, forming, embossing, and folding; assembling dies; coining, swaging, cold sizing, and extruding; drawing dies; low-cost tools for limited production; special dies and novel operations; and mathematics for press tools and presses.

This certainly is a heavily illustrated reference. You get brief, to-the-point how-to, hints and tips, and details on using a press to work metal. Think about it. A simple die and a simple press could punch out the chassis for a radio or an unusual heat en-



gine, quickly fabricate brackets in large quantities, or maybe even punch out embossed novelties that could be painted and sold at flea markets or crafts shows.

If you're handy with metal and want to be handier (and best of all, make money doing it), this is a book to look into. I think it makes a natural companion to Woodworth's "Dies: Their Construction and Use..." that we've also reprinted. I think you'll like it.

Beautifully illustrated. Interesting photos and incredible number of clear, informative mechanical drawings. From 1941. Excellent. Get a copy! 5 1/2 x 8 1/2 softcover 443 pages No. 21621 \$19.95

Dies Their Construction & Use

DIES - THEIR CONSTRUCTION AND USE

by Joseph V. Woodworth

reprinted by Lindsay Publications

Dies are magic! Mount them on a power press, slip in a piece of sheet metal, and let the press cycle. Out come simple flat shapes or complex forms like soft drink cans and auto fenders. And it is all done at incredible speed, time after time, each and every piece being identical.

Learn how you can put dies to work in small manufacturing shops. Thirteen chapters will teach you about blanking dies, piercing dies, simple dies for use in the machine shop, gang and follow dies, use of dies for production of sheet metal parts, bending and forming dies and fixtures, perforating dies, dies for curling, wiring and seaming, draw dies, coining processes, methods for feeding stock, hardening and tempering of dies, and more.

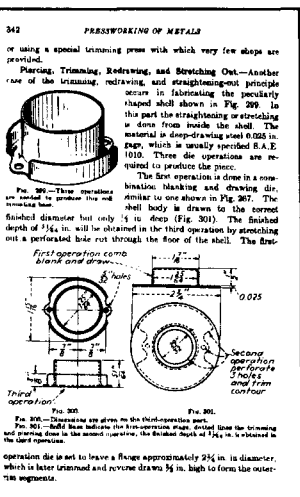
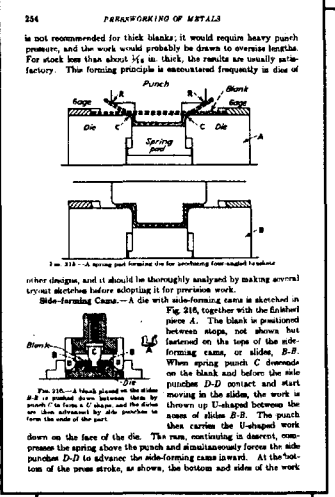
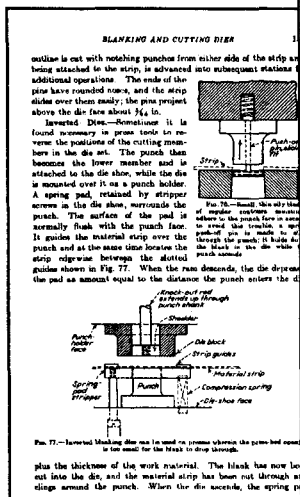
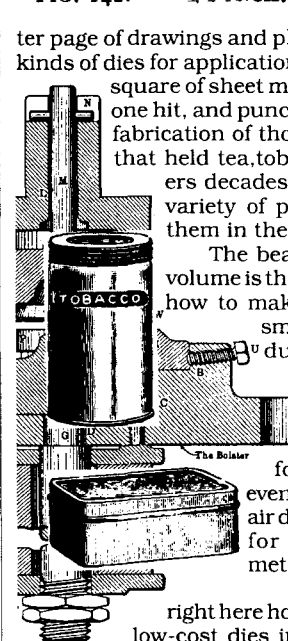
You get page after page of drawings and photos showing all kinds of dies for applications from turning a square of sheet metal into a tube in one hit, and punching holes, to the fabrication of those fancy old tins that held tea, tobacco, and crackers decades ago. You'll see a variety of presses - most of them in the smaller sizes.

The beauty of this 1917 volume is that you'll be taught how to make simple dies in smaller sizes for producing all kinds of things from safety pins to punching fancy leather pieces for shoes. You'll even see a compressed air drop hammer used for making sheet metal caskets!

You can learn right here how to make simple, low-cost dies in your own shop that produce items you can use yourself or sell as a sideline. Great information on a mass production tool useful to the small time operator. Very well illustrated. You'll like it. Get a copy. 5 1/2 x 8 1/2 softcover. 400 pages.

No. 4309 \$15.95

FIG. 142.



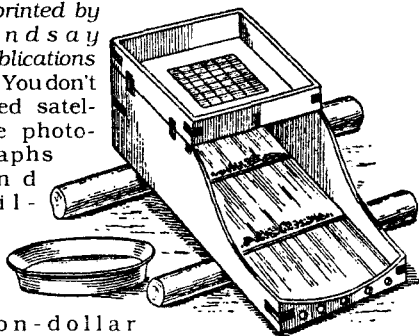
PROSPECTOR'S FIELD BOOK

THE PROSPECTOR'S FIELD-BOOK AND GUIDE

by Prof. H. S. Osborn

reprinted by
Lindsay
Publications

You don't
need satel-
lite photo-
graphs
and mil-



lion-dollar
equipment to find valuable ore de-
posits. In this book an old-timer will teach
you the state of the art as it was in 1901.

You'll learn the basics of mineralogy,
blowpipe analysis, crystallography, survey-
ing, ore analysis, and special mineralogy.
Then you'll get detailed information on tellu-
rium, platinum, silver, copper, lead, tin,
mercury, bismuth, nickel, cobalt, cadmium,
zinc, iron, aluminum, antimony and manga-
nese. A chapter touches briefly on alum,
arsenic, borax, clays, mica, meerschaum,
rock salt and more. Another chapter goes
into petroleum, ozocerite,
asphalt and even peat.
Chapter 15 will even
teach you about gems
and precious
stones.

This book can
be used all over
the US from East
coast to West.
You can explore
for gold, silver
and platinum
and hope to get
rich. More real-
istically, it might
be fun to locate a
local vein of iron
ore or copper ore
and try smelting metal the way the ancients
did it. Imagine the fun you'd have bragging
that you not only built a lathe, but that you
actually extracted the metal used in its
construction from ores you dug yourself!

If nothing else, you'll find this to be an
easy-to-read text on minerals and basic ge-
ology. And it's good. The first edition came
out in 1892, and this is a reprint of the 5th
edition in 1901. So you know this was a
popular book in its day. Get a copy.
5 1/2 x 8 1/2 paperback 308 pages
No. 4570

\$9.95

ADVANCED MACHINE WORK

by Robert H. Smith

reprinted by Lindsay Publications

Here's the best general machine shop
book I've ever seen old or new. Smith
brought out this book in 1915, updating it in
1925. That makes it new enough to still be of
great value, but old enough to contain a
many techniques that are no longer taught.

You get easy-to-read text, step-by-step
instructions, and great illustrations. Mod-
ern books are prettier, but they cannot pos-
sibly do a better job of teaching.

"Advanced" covers everything you can
imagine from basic operation of a microme-
ter and vernier caliper, to the testing of
machine tools for accuracy. You'll learn the
different methods of turning tapers and their
fitting, detailed in-
structions on cut-
ting threads, mak-
ing bolts and nuts,
face plates and
chucks, mounting
work, turning
flanges and pul-
leys, boring,
threading, cutting
square threads
bolts and nuts,
cutting multiple
threads, knurling,
and much more.

You'll learn
about drilling jigs,
eccentric turning,
facing large cylin-
ders, use of stead-
ies and followers,
external and inter-
nal grinding, and
the grinding of pis-
ton rings, milling
cutters, reamers,
and more.

Chapter nine
covers planers and their use. Learn to plane
keyways, lathe beds, vises, and more.

In learning to use a milling machine you'll

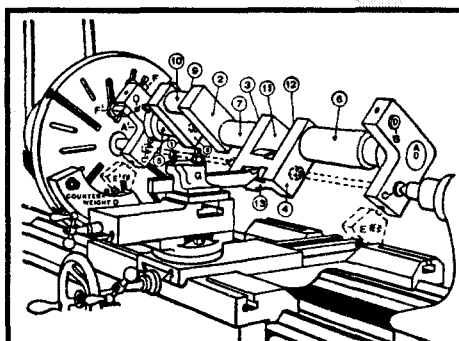


FIG. 41. — TURNING A TWO-THROW 90° ENGINE CRANKSHAFT.
SCHEDULE DRAWING.

SCHEDULE OF OPERATIONS

Rough turn blank. Mount up
on regular centers AA', Fig. 41.
Rough square faces of webs 1, 2,
3, 4, and rough turn shaft 5, 6,
and 7.
Change to crank centers BB'.
Rough square and turn 8, 9, and
10.
Change to crank centers CC'.
Rough square and turn 11, 12,
13.
Counterbalance crank fixtures
by using weight D, or preferably
by adjustable weights EE'.

Use driver FF' with piece of
leather to reduce jar.
Season crankshaft between
roughing and finishing, if time
will permit.
Finish square and turn in
reverse order.
It is best to spot 7 and use
steady rest for finishing. For
slender crankshafts
braces as shown.
European
to a sing-
plane edge

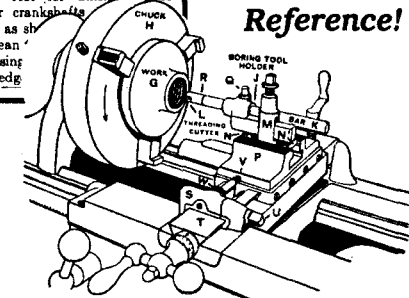


FIG. 14. — INSIDE THREADING IN ENGINE LATHE.

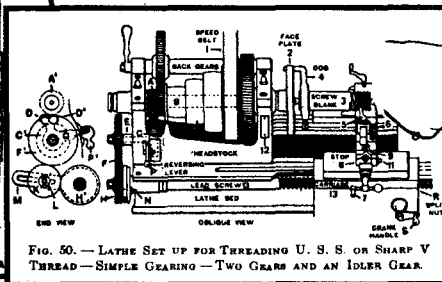
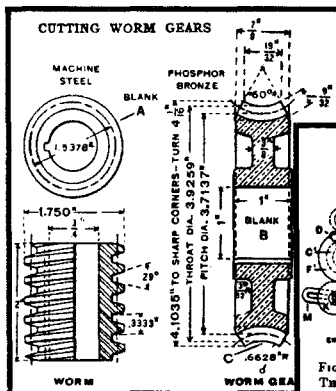


FIG. 50. — LATHE SET UP FOR THREADING U. S. S. OR SHARP V
THREAD—SIMPLE GEARING—TWO GEARS AND AN IDLER GEAR.

groove taps, flute reamers, mill T-slots in a
circular table and more.

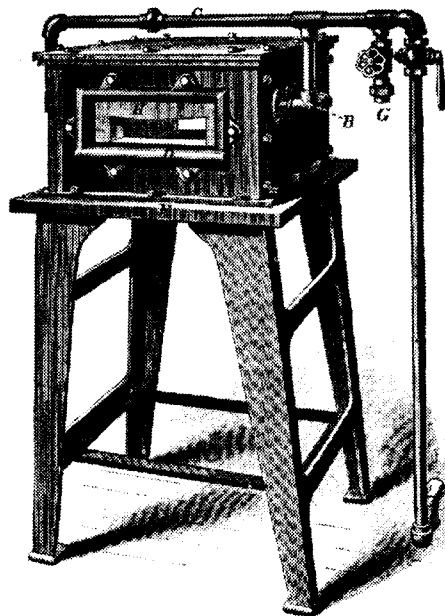
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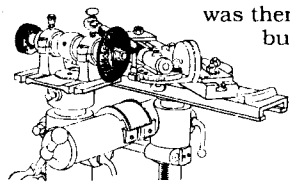


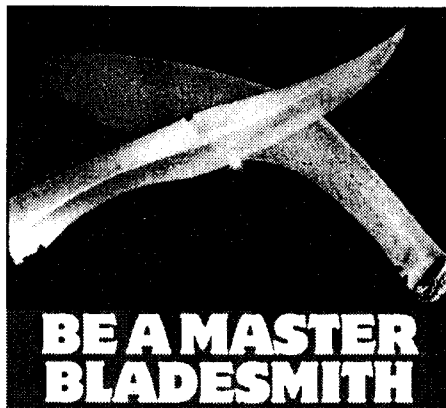
FIG. 166.—GRINDING WHEEL ON END OF REAMER.

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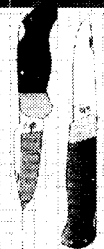
The author will show you how to make a folding lockback knife with a carbon steel blade using simple hand tools. This is for beginners like you and me and not advanced bladesmiths.

Malmros will expose you to the necessary materials, and give you patterns for a field

The Hand-crafted Folding Knife

Making a lockback knife with simple hand tools

Mark K Malmros

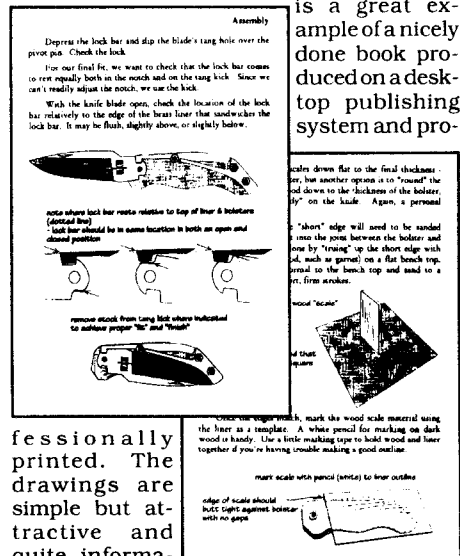


and stream fillet knife, the gentleman's lockback, and the Indian folder. Next, you'll cut the parts from steel and brass with a hacksaw, finishing them up with a file and sandpaper. You'll heat treat the blade with a propane torch and assemble the parts.

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is a great example of a nicely done book produced on a desktop publishing system and pro-



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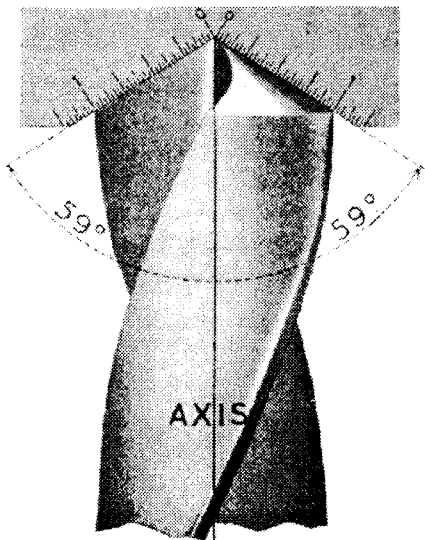
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by the Cleveland Twist Drill Co.
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ter 5 covers common errors and their results, including broken tangs, how to "drift out", using a lead hammer, warming high speed drills before using, and more. You'll find tables of feeds and speeds for drills from the tiniest numbered drill to 3" dia. drills with Morse taper shanks. Finally you'll discover several pages of advertising promoting Cleveland Twist drills, reamers, counter-bores, end mills and more.

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While some of the older operations, such as planing, retain many of their old characteristics, there are new developments... Milling has been greatly improved in many ways. Machines, cutters, and methods have undergone numerous changes. New dividing heads make it possible to secure the desired indexing in less time and with greater accuracy. Modern broaching practice has opened new possibilities in surface machining that were undreamed of a few years ago.

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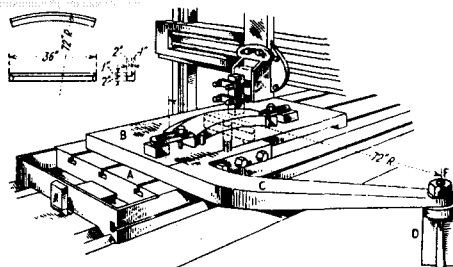


FIG. 48.—Radius planing device for planer

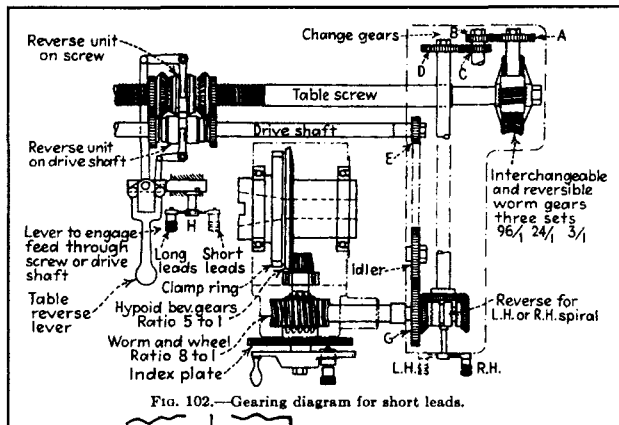


FIG. 102.—Gearing diagram for short leads

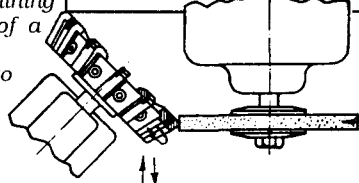


FIG. 53.—Turn wheel head and grind the corners of the teeth. Where the grinding equipment does not permit the grinding of a true radius on the corner grind a 45-deg. angle first and then angles of $22\frac{1}{2}$ deg. and $67\frac{1}{2}$ deg. The resulting corner will approximate a radius.

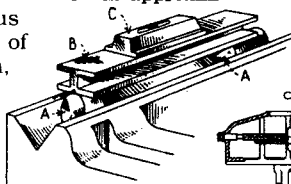


FIG. 3.—Using same equipment to check high or low spots on each side of bed.

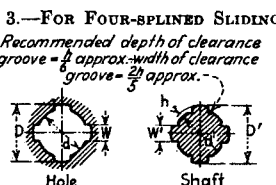


FIG. 58.—Section of shaper showing driving mechanism

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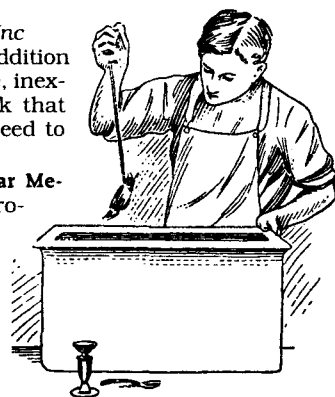
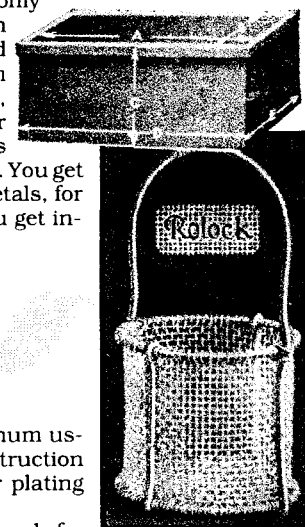
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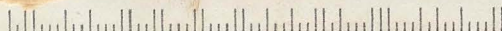
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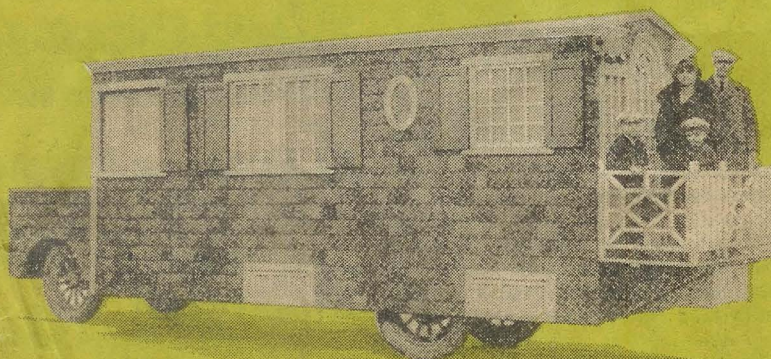
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